AIR CONDITIONING & REFRIGERATION NEWS

The Newspaper of the Industry

RESIDENTIAL — COMMERCIAL — INDUSTRIAL

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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Mighty Acorn
We Aren't So Original Any More
Market Survey Research
Final Thoughts

Stories of the Week

"How about a big hug and kiss for Daddy?"

Little Margie couldn't be bothered.

"Look, honey, Daddy worked hard all day to make money for you and mommy. Don't you think he deserves a little kiss?"

Margie showed how the female twig inclines by answering:

"Where's the money?"

"My little girl was upset when she got a busy signal over the telephone," contributes Jay Horning. "I told her to hang up, wait a moment, then dial again.

" 'Hang what up?' she wanted to know.

"The telephone receiver dear.

" 'Hang it on what?'

"For a moment that stopped me. Then I realized that the wall telephone of my childhood is a thing of the past. Even though we still say 'hang up,' nowadays we lay down a telephone receiver."

Overheard from the teen-age set:

"You dragging a date to the school dance?"

"Nope. Goin' stud."

Popular Babe Buxom couldn't figure out why her special boyfriend got sore when she was chosen Miss Community Chest.

Sign in the window of a small store in Pennsylvania:

"We buy trash. Antiques for sale."

Mighty Acorn

Great news today, friends—news of a man who struck a mighty blow for freedom. Furthermore, the hero of this story is a refrigeration serviceman.

Opening Scene: the living quarters in the rear of a Santa Monica dealership owned by this serviceman's two employers.

Pooped out after spending the day installing a large walk-in refrigerator, serviceman Edward Sidney relaxed with the help of a jug of wine.

Weary from the day's labor, serviceman Sidney soon was dead to the world. With the jug in his lap he snored peacefully.

(Concluded on Page 8, Col. 1)

ARW Meets On West Coast Oct. 22-27

COLUMBUS, Ohio — The more than 400 wholesalers and manufacturers expected to attend the Oct. 22-24 meeting at the Sheraton Palace hotel, San Francisco, and the Oct. 27 meeting at the Sheraton West hotel, Los Angeles, will hear speakers on the subject of business and management, it was announced by the Air-Conditioning & Refrigeration Wholesalers.

A unique feature of the program for this annual ARW conclave will be a "continuation" of the convention at Los Angeles on Monday, Oct. 27. A full day's session is planned at the Sheraton West hotel in Los Angeles on Oct. 27, with panel sessions on "The New Concept in Merchandising and Management" in the morning, and a business session and continuation of the panel session in the afternoon.

It was explained by ARW officials that since this is the first annual ARW convention

(Concluded on Page 27, Col. 1)

Arkla Offers 'Trade-Out' Plan

LITTLE ROCK, Ark.—A new "trade-out" program aimed at replacing older Servel gas air conditioners with new "Sun Valley" models was inaugurated Sept. 15 by Arkla Air Conditioning Corp. here.

"With a constantly increasing production rate at our Evansville (Ind.) plant, we are now in a position to set up a firm 'trade out' program which will not jeopardize delivery of units to customers during the remainder of 1958 and through 1959," W. R. Stephens declared in an announcement to gas utilities.

"This is being done," he continued, "by (1) setting 'trade out' prices for Sun Valley replacement of older units manufactured by Servel, Inc. which

(Concluded on Page 27, Col. 1)

Basic Facts About the Industrial Market for Air Conditioning

SHOCKING to enthusiastic industrial air conditioning promoters is the rough estimate that more than 80% of the total number of factories and commercial buildings in the United States have *no form* of air conditioning at all.

Obviously there is a tremendous job to be done in *merchandising the benefits and financial values of conditioned air* to industrial-type and big commercial building prospects in the present and future.

Among existing office-type buildings and factories, for example, probably there are far more commercial and industrial firms which *never have been solicited by air conditioning salesmen* than the total of those buildings which

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NEMA, ARI Feed IRS Their Thinking On Room Cooler Excise Tax Revision

WASHINGTON, D. C.—Both the National Electrical Manufacturers Association and the Air-Conditioning & Refrigeration Institute sent their suggestions on revision of the excise tax ruling on room air conditioners to the Internal Revenue Service last week.

Representatives of the room air conditioner section of NEMA also met with IRS officials on Thursday, Sept. 18 to expand their views. ARI officials have not yet met with the tax people. Though no date has yet been set, ARI has requested a hearing sometime after Sept. 25.

Both groups made it clear that they want a room air conditioner carefully defined so that the tax will only apply to what the industry considers a room air conditioner. They both want sleeves and shelves excluded.

But the two organizations differ considerably on when they would like the tax to take effect (Nov. 1 for NEMA and July 1, 1959 for ARI) and on the treatment of heat pump air conditioners (NEMA wants to exclude them and ARI would include them).

Prior to NEMA's meeting with tax officials, Joseph F. Miller, managing director of NEMA, sent IRS its suggestions for revision of the ruling.

IRS had proposed that all room air conditioners, regardless of size, should be subject to the 10% manufacturers excise tax. Previously, only units of less than 1-hp. compressor capacity were taxed.

NEMA suggested that:

1. Reverse cycle units be exempt from the tax because such units are a new type of appliance, the taxability of which is not within the intent of the Federal excise tax law.

(Concluded on Back Page, Col. 1)

Changes Tack

Acme Puts Push Behind Field Sales

JACKSON, Mich. — Long a supplier of components to major refrigeration companies, Acme Industries, Inc. has decided to shift its sales emphasis to field sales under the Acme name.

To implement this decision, the company has expanded its sales force to more than 150 men, has developed new and improved products, and has extended its coverage of the air conditioning equipment field.

For the first time, the company declared, Acme offers a complete line of equipment for all parts of the air conditioning system from the smallest central system to units of 125 tons and up. Acme is now a full line company selling complete air conditioning systems for practically all applications.

To acquaint them with its new sales policies and products, Acme has called every sales engineer and field office representative to the factory for a two-day meeting, Sept. 22 and 23.

In addition, the meeting will show them how Acme will back

(Concluded on Page 27, Col. 3)

Sutton Plans To Liquidate Inventory

Needs Cash to Meet Past Due Bank Loans

WICHITA, Kan.—An immediate plan for the liquidation of inventories and accounts receivable was announced last week by The O. A. Sutton Corp., Inc., manufacturer of Vornado air conditioners and fans.

H. F. Hildreth, president and general manager, issued the following statement:

"Due to the very unusual weather we have had for the past two years and the low margin of profit inherent in our industry, the O. A. Sutton Corp. found it was unable to meet the maturities of its bank indebtedness which were due Sept. 10, 1958.

"A meeting was held by the company's board of directors and the officers of our banks in Wichita on Sept. 10 to discuss the matter. As a result of this meeting the banks are cooperating with the corporation while an orderly liquidation of the company's inventories and accounts receivable is being effected."

The company plans, according to Hildreth, to offer Vornado inventories to distributors and dealers on an attractive cash basis. The money received will be used to pay off bank indebtedness and enable the company to continue in business with the remaining assets.

Quite obviously, Hildreth stated, the company is standing back of its obligations on warranties and all other types of obligations and "expects to remain in business after we have placed ourselves in a more liquid state.

"The prices and plans we

(Concluded on Page 27, Col. 4)

Riley, Goldberg Take Over Marco

WOMELSDORF, Pa. — Total assets of the recently-dissolved Marco Industries, Inc., manufacturer of small, fractional horsepower motors for air conditioning and heating, have been acquired by a group headed by James W. Riley and Meyer Goldberg of Cincinnati, it was announced last week.

Riley, who was vice president of Marco Industries, has been elected president of the new corporation, and Goldberg has been elected vice president. The new corporation will be known as Marco Electric Mfg. Corp.

A widely-known Ohio industrialist, Goldberg is currently a vice president and director of Frederick Iron & Steel Co.,

(Concluded on Page 27, Col. 4)

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Use Bid Depository, Subcontractors Ask

LOS ANGELES—Representatives of subcontracting associations met here Sept. 8-9 with legislative committee members from the four California chapters of The Associated General Contractors of America.

Participation in bid depositories by members of AGC with members of subcontracting groups was discussed.

Urgency was given the bid depository issue because subcontracting groups in the Los Angeles area have leading members who have participated in the formation of "Construction Exchange of Los Angeles" to be located in the present Plan Room building on Georgia St.

CELA will provide, among other services, a plan room, a bid depository, and information on bidding.

NLRB Orders Union To Stop Blocking Use of York Equipment

WASHINGTON, D. C.—National Labor Relations Board has ordered Clifton Deangulo, business representative for Local 98 of the Sheet Metal Workers International Association at Columbus, Ohio to stop inducing employes of the Limbach Co., air conditioning contractor there, to refuse to perform any service for Limbach in order to force Limbach to cease handling the products of, or cease doing business with York Corp., subsidiary of Borg-Warner Corp., or the Barber-Colman Co.

Deangulo had ordered Limbach employes, members of Local 98, not to handle York induction units that had not been manufactured by members of the Sheet Metal Workers' union. (See previous story, page 8, March 17 issue).

York filed secondary boycott charges against the union. The union argued that it had no quarrel with York, but just with Limbach.

Limbach was a York subcontractor on an office building job.

Limbach, the union charged, violated its contract with the union, whereby it recognized union jurisdiction over all sheet metal work of No. 10 U. S. gauge or lighter.

NLRB, however, dismissed the portion of the complaint alleging that Deangulo and the union restrained and coerced York's employes in their rights to engage or refrain from concerted activities.

Dr. Maclinn Succeeds Diehl as TRRF Head

COLORADO SPRINGS, Colo.—Retirement of H. C. "Dutch" Diehl as director of The Refrigeration Research Foundation and appointment of Dr. Walter A. Maclinn to succeed him have been announced by Garth A. Shoemaker, president.

Dr. Maclinn has been chairman of the Dept. of Food Science at Rutgers university.

Diehl has served as director of TRRF since it was founded in 1943. Since he will continue to live in Colorado Springs for the present, Diehl has agreed to be available for a time for consultation on foundation matters.

A graduate of the University of Massachusetts, Dr. Maclinn during World War II was executive officer and assistant director of the Food and Container Research Institute.

Hussmann Names Line to New Marketing Post

ST. LOUIS—John R. Caulk, Jr., executive vice president, Hussmann Refrigerator Co., announced the appointments of Richard A. Line to the newly-created position of marketing services manager, and Donald E. Friedman to fill the position of chief engineer, vacated by Line.

Line will be responsible for developing improvements in handling sales orders and customer relations and will serve as executive assistant to A. B. Biddle, executive vice president of the sales subsidiary, Hussmann Refrigeration, Inc.

The responsibilities of Friedman as chief engineer "will be broadened to include many of the activities which he formerly performed as a member of the sales subsidiary in connection with development of new design as revealed by active contact with customer needs and requirements," it was stated.

In another announcement, Biddle made known the following management changes:

J. G. Oliver to assistant general sales manager of regional accounts; John M. Fritz to division manager of Div. No. 4, which is made up of Michigan, Indiana, and parts of Illinois and Kentucky; and Bill Henderson to division manager, Texas Div.

Oliver joined the Hussmann organization in 1946 as a sales correspondent. In 1949 he transferred to the Hussmann distributor for the Cincinnati area, and in 1954 he was made division manager of Div. No. 4, holding that position until the time of this promotion.

Fritz joined Hussmann in 1954 as a sales correspondent and in 1956 was made a salesman in the Oklahoma City branch operation. Henderson has been with Hussmann since 1955 when he started as a salesman with the Oklahoma City branch. In 1956 he was made manager of that branch.

Air Devices Acquires Stewart Register Line

NEW YORK CITY—Air Devices Inc. here has announced that it has acquired the complete line of registers and grilles formerly manufactured by Stewart Mfg. Co., Kinston, N. C.

These registers and grilles will now be marketed under the trade name "Agitair" and will be manufactured in Pennsylvania, the announcement said.

All Agitair products—air diffusers, filters, exhausters, registers, and grilles—will be sold exclusively by representatives for Air Devices, it was pointed out.

Pryor Joins Trion

PITTSBURGH—R. R. Pryor has been named vice president-sales of Trion, Inc., manufacturer of electronic air cleaning equipment.

Pryor was for the past four years manager-air filter sales, Pittsburgh Plate Glass Co.

SO HALSTEAD & MITCHELL ENGINEERS SAID . . .

WIDE FIN SPACING CUTS CLOGGING ON H&M AIR-COOLED CONDENSERS

Maintenance costs are low when you use Halstead & Mitchell Air-Cooled Condensers

All H&M condensers feature wide spaced fins that won't clog as rapidly with dust or other air borne particles. The exclusive Turbu-Flo fin design adds surface area and improves heat transfer by up to 15%.

Large fans driven at low speeds assure quiet operation of even the biggest units. Multiple circuiting to meet the requirements of the individual job is furnished at no additional cost when specified. Casings are extra-rugged; won't rattle or loosen with use.

Type AC condensers are propeller fan models, normally installed on a roof, remote from the compressor. Single units are available in 5 to 50 ton nominal capacity. 60 to 100 ton capacity is provided through use of two smaller condensers supplied with necessary manifolding for easy field installation. Floor mounting is standard; ceiling mounting can be provided.

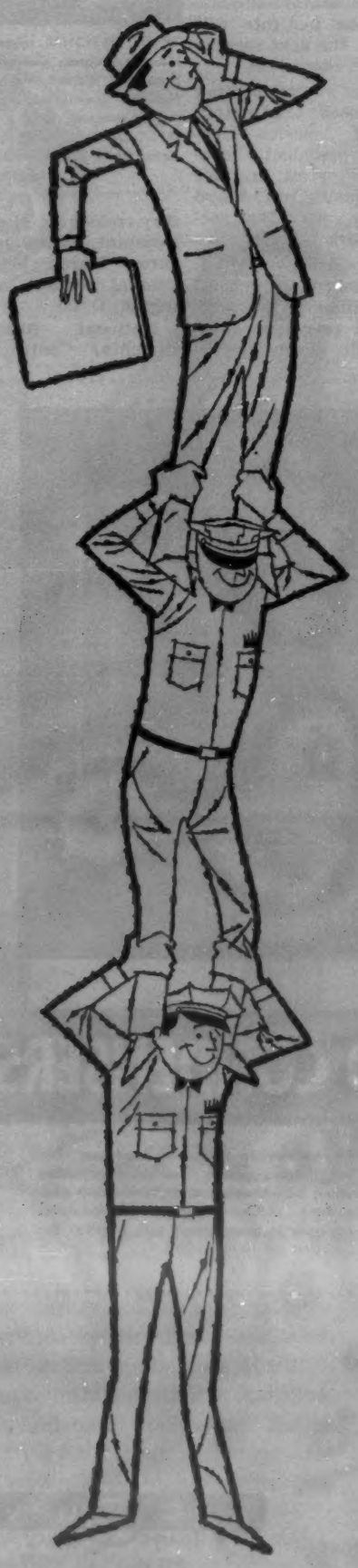
Type BC condensers are centrifugal models for indoor installations and where ductwork is required. Available in a wide range of sizes, Type BC units can be arranged to exhaust equipment room heat in summer, and to utilize condenser heat in winter.

Type ACR condensers are centrifugal fan units available in 2 through 7½ tons for residential air conditioning. Space is provided for compressor and controls.

Get complete information from your local distributor, or write Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

Halstead & Mitchell

MEASURE YOURSELF UP WITH



Frigidaire Golden Rule Service

If there's a bigger stumbling block to future sales than a reputation for poor service—name it! And if there's a better *answer* to cut-price competition than *good service*—we'd like to know it!

Service is the one solid foundation for permanent success—*including* sales—because it's the neighborhood word-of-mouth that either makes you or breaks you in the long run.

Yet,—and here's what some short-sighted dealers never seem to learn—a good service department actually pays its own way besides!

So put yourself in your customers' position and practice Frigidaire Golden Rule Service. Your Frigidaire District Service Manager will show you how—and training at General Motors Training Centers will more than prepare your servicemen. And that Award of Merit on your wall is money in the bank with prospects and customers, too. The whole plan is yours to use for free! Give yourself a lift for today—for tomorrow, and write.

FRIGIDAIRE DIVISION
General Motors Corporation, Dayton 1, Ohio

AWARD OF MERIT

Frigidaire presents this plaque to dealers who meet and maintain specified standards which assure good service relations with customers. Possession of this plaque is a big merchandising "plus" in showroom and advertising.

GM GOLDEN ANNIVERSARY
Frigidaire—Built and Backed by General Motors

IN SERVICE ASSISTANCE AS IN SALES

FRIGIDAIRE is on the march

Contractors, UA Confer on Hiring Changes

WASHINGTON, D. C.—Leaders of six national contracting organizations in the plumbing, heating, and air conditioning field met with officials of the United Association of Plumbers and Pipe Fitters (AFL-CIO), with whom each has labor contracts, in a day-long meeting here under the sponsorship of the industry's Joint Industry Program Committee.

Purpose of the meeting was to discuss the impact of recent National Labor Relations Board decisions on hiring procedures within the industry. The group heard Martin F. O'Donoghue, general counsel of the United Association, who has been advising UA on hiring changes necessary to conform to the recent Brown-Olds and Mountain Pacific decisions of NLRB.

After extended discussion, it was agreed that legal counsel of each association in attendance, as well as the Pipe Line Contractors Association and the Pipe Fabrication Institute, would meet on Sept. 30 in Washington to discuss and recommend a plan for the use of the respective memberships of their national associations on hiring procedures.

The attorneys' recommendations will be referred to the next meeting of the entire group in conjunction with the convention of the Refrigeration & Air Conditioning Contractors Association at the Broadmoor hotel, Colorado Springs, Colo., on Oct. 10. The NLRB has recently ruled that all contracts must conform to the new requirements by Nov. 1, or unions and employers both face heavy penalties for non-compliance, it was pointed out.

John M. Rhoades of Sarasota, Fla., president of the National Association of Plumbing Contractors, is chairman of the Joint Industry Program Committee. Enlargement of the group to include the Pipe Line Contractors Association and the Pipe Fabrication Institute will be discussed at the next regular meeting of the committee.

Present at the recent meeting were: Mechanical Contractors Association of America—Horace E. Wetzell, president, Cleveland; William P. Scott, Jr., vice president, Oakland, Calif; Lloyd B. Gruman, Jr., executive secretary, New York City.

United Association—John J. McCartin, assistant general president; William T. Dodd, executive vice president; William C. O'Neill, general secretary-treasurer; Martin J. Ward, assistant general secretary-treasurer; Martin F. O'Donoghue, general counsel—all of Washington, D. C.

National Association of Plumbing Contractors—J. M. Rhoades; Irvin L. Rechkemmer, first vice president, Canton, Ohio; Carl N. Finley, second vice president, New Orleans; Jerome O. Hendrickson, executive secretary, Washington, D. C.

Refrigeration & Air Conditioning Contractors Association—C. L. Walling, president, Los Angeles; R. B. Garlock, board member, Lansing, Mich.; Harvey W. Hottel, treasurer, Washington, D. C.

National Automatic Sprinkler & Fire Control Association—Raymond J. Casey, executive director, New York City.

National Constructors Association—Carl B. Whyte, president, New York City; John E. Quinn, Chicago.

National Lead Burning Contractors Association—Mel Grabel, secretary, New York City; Frank Kiernan, executive committee member, New York City.

SEVEN NATIONAL associations are represented in the group attending the Joint Industry Program Committee meeting in Washington, D. C. recently. Left to right: Horace E. Wetzell, Mechanical Contractors Association of America; John E. Quinn, National Constructors Association; John M. Rhoades, National Association of Plumbing Contractors; John J. McCartin, United Association of Plumbers and Pipe Fitters (AFL-CIO); C. L. Walling, Refrigeration & Air Conditioning Contractors Association; Raymond J. Casey, National Automatic Sprinkler & Fire Control Association; and Mel Grabel, National Lead Burning Contractors Association.

Industry Veteran Tom Binder Dies

NEWARK, N. J.—Tom Binder, an industry veteran who operated John Sales Associates with his son, Harold, died recently.

He had been in the air conditioning and refrigeration industry for some 35 years and was a member of the American Society of Refrigerating Engineers. In 1932 he founded T. W. Binder Co., a wholesaler which is now Tesco in Newark.

In 1939 he founded American Coils Co. He sold his interest in that company in 1948, at which time he organized John Sales Associates, a distributing organization. The latter firm will continue to be operated by his son, Harold Binder.

To Mid-October

Temperatures Seen Above Normal In Some Areas

WASHINGTON, D. C. — The U. S. Weather Bureau's outlook for the period extending to mid-October calls for temperatures to average above seasonal normals over the southeastern quarter of the nation, Texas, and in the area from the Ohio Valley eastward through the Middle Atlantic states.

Near normal temperatures are indicated for New England and states bordering the eastern Great Lakes, the bureau said. Over the western half of the country, below normal temperatures are anticipated, except for above normal along the west coast.

MORE *Models*
MORE *Capacity*
MORE *Performance*

McQuay AIR COOLED CONDENSERS

UP TO 50 TONS IN A SINGLE UNIT—UNLIMITED CAPACITY IN MULTIPLE INSTALLATION

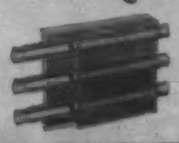
McQuay Aircon remote waterless condenser. Ten models, 3 to 50 ton capacity. Belt or direct drive models. Lifetime ball bearing and slow speed propeller type fans. McQuay Seasontrol modulates condenser capacity in accordance with weather for peak performance all year 'round.

WHEN you use McQuay Aircon air cooled condensers you have 10 models to choose from and you get from 3 ton to 50 ton capacity in a single unit! With multiple installations, capacities are unlimited.

You not only get more models and more capacity but you get more performance, because McQuay Aircons have the exclusive McQuay Ripple Fin coils—the finest and the standard of the industry.

With the present emphasis on remote waterless condensers, look to McQuay. Compare construction, compare features, compare the all around quality. Belt or direct drive models are offered. See your McQuay representative or write McQuay, Inc., 1607 Broadway Street N.E., Minneapolis 13, Minnesota.

McQuay Means Quality



McQuay units feature the exclusive Ripple Fin Coils which create maximum air turbulence and have wide, full fin collars that act as automatic spacers to form a tube around the coil tube for greatest heat transfer and protection.

McQuay INC.

AIR CONDITIONING • HEATING • REFRIGERATION

Fashions in Furnaces

by GENERAL ELECTRIC

"GROWS" INTO YEAR 'ROUND AIR CONDITIONING

COOLING COIL ENCLOSURE

ONLY 55" HIGH

ALL-NEW *Custom* OIL FURNACE LINE...

COMPLETELY FACTORY ASSEMBLED AND DESIGNED TO BOOST YOUR PROFITS

Ideally priced for the builder market and for the profitable modernization and replacement market. Smallest model takes only 28"x22" of floor space in vertical application. Horizontal-downflow combination can be installed either in downflow position or on either side in horizontal application. Entire line features quick-heating "Vertifin" heat exchanger—dependable safety features. Conventional high-pressure gun burner and other standard parts permit easy servicing and replacement. Two-tone gray, ultimate in smart design—handsome as a modern kitchen appliance. BTUH output: 84,000 to 168,000 upflow—84,000 to 112,000 combination horizontal-downflow. *Listed by Underwriters' Laboratories and approved by UL as conforming with the U.S. Department of Commerce Commercial Standard CS 195-57.*

OPERATION upturn
Build sales and jobs in '58
GENERAL ELECTRIC

OPERATION UPTURN means General Electric will go all out to accelerate an upturn in business in 1958. It will help boost dealer sales and profits. So get in on the ground floor! For complete details of OPERATION UPTURN and a General Electric franchise, call your nearest General Electric distributor—listed in the yellow pages of your phone book—or mail coupon. General Electric Company, Air Conditioning Department, Tyler, Texas.

GENERAL ELECTRIC

General Electric Company ACD 17
Air Conditioning Dept., Tyler, Texas

I would like complete information on the General Electric Air Conditioning Department Franchise—and OPERATION UPTURN.

Name_____

Firm Name_____

Address_____

City_____ Zone____ State_____

In Texas Instruments Building

9-Ft. Space Frame Between First, Second Floor Houses Air Conditioning, Service Facilities

SPACE FRAME, 9 ft. high, separates the first and second floors of Texas Instruments, Inc. new plant in Dallas. It contains all utility and service facilities, including air conditioning.

DALLAS—A $5 million air conditioned plant of revolutionary design for the manufacture of transistors and other semiconductor devices was opened here this summer by Texas Instruments, Inc.

One of its revolutionary design features is a 9-ft. space frame between the first floor engineering and administrative area and the second floor manufacturing area.

Within the space frame are contained all utility and service facilities, including complete air conditioning.

The combination of the space frame and a roof of thin shell concrete in hyperbolic-paraboloid units permitted spacing supporting columns 63 ft. apart in the 378 by 442-ft. building. This provided exceptionally broad, uncluttered areas on both floors.

Three Trane centrifugal machines are used to air condition the building. They have a total capacity of 1,200 tons of refrigeration when circulating 3,600 g.p.m. of condenser water entering at 85° F. and leaving at 95° F., chilling conditioning water to 42° F.

Each unit is equipped with a capacity control system which permits continuous variable loading from 10 to 100% of capacity. This control system automatically stops the unit when its load falls below 10% capacity.

Each evaporator is a multipass, horizontal shell and finned tube type of unit. Tubes are integral finned seamless copper, rolled into the tube sheets. Eliminators are multiple layers of V-trough metal screen mounted in removable frames.

Condensers are similar to evaporators in construction except that tubes and tube sheets are of 90-10 cupro nickel metal. Pressure drop through the condenser and evaporator is designed not to exceed 30 ft.

Distribution of both cold and hot air throughout the building is through 106 Trane "Climate-Changer" air handling units strategically located throughout the pipe space frame.

Service Equipment for Air Conditioning and Air Distribution System

Air Handling Units for Air Distribution	Trane Co.
Refrigeration System for Air Conditioning	Trane Co.
Primary Filters (Electrostatic) & Precipitators.	American Air Filter Co.
Dehumidification (Hygrol)	Niagara Blower Co.
Cooling Tower	Marley Co.
Boilers	Pacific Boiler Co.
Temperature Controls (Pneumatic)	Johnson Service Co.
Motor Controls and Starters	Allis-Chalmers
Pumps (HW and CHW)	Buffalo
Transformers (1000 KVA unit substations)	Allis-Chalmers

Distribution of Hot and Cold Air

These units have a filter section, cooling coil section, reheat coil section, and fan section. The reheat coil section is after the cooling coil section.

Conditioned air supplied to the second floor is diffused through the hollow support columns and through punkah louvers located in the columns. The louvers are varidirectional and have capacities up to 4,000 c.f.m. each.

Air for the first floor is diffused through plastic diffusers located in the luminescent ceiling. They have capacities up to 500 c.f.m. each. Plastic diffusers are connected by flexible tubing to the supply duct next to the ceiling slab of the first floor.

Hot water supply to all hot water coils in the air handling units is supplied by a hot water boiler having a rating of 150 hp. and capable of generating 5,021,000 B.t.u.h. continuously. The boiler has a modulating gas firing system with all automatic burner and safety controls.

'Snow White' Area

On the second floor, 60,000 sq. ft. of manufacturing area is sealed from the rest of the building principally by glass and masonry walls. It is called the "Snow White" area.

A group of combination air locks and locker rooms are located at various entry points to this area. All personnel must enter through a negative pressure air lock and don special lint-free clothing.

Air to the Snow White area is kept at a constant 20% r.h. and a temperature of 78° F. Dehumidification is accomplished by a Niagara Blower Co. "Hygrol" system which has the capacity to remove 672 lbs. of water per hour.

The air conditioning system itself is a dual pipe system. Ductwork supplying air to the Snow White area and returning it to the air conditioning equip-

New low-cost, high-capacity

thermostat

controls several circuits with a

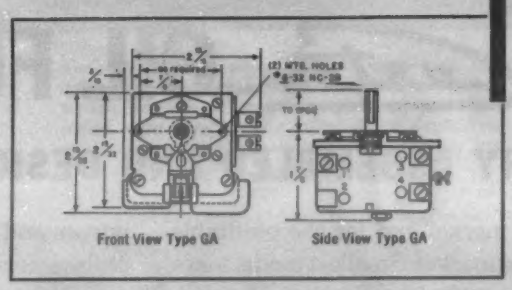
single dial

WILCOLATOR SERIES GA PROVIDES OFF—FAN ONLY—FAN and COOLING

In the new Wilcolator Series GA thermostat, a built-in switch—cam operated by the dial shaft—makes it possible to control several circuits with a single dial and disconnect more than one line when the dial is in Off position. In air-conditioner applications, this provides for Off, Fan Only, and Fan and Cooling.

Featuring an improved snap-action switch for higher contact ratings, these compact, low-cost thermostats have ample capacity for heavy duty appliances and medium industrial requirements. Amplitude factory set to your specifications. Contact mechanism not affected by vibration. Can be used with any dial or pointer having a ¼-in. shaft hole.

For more information, write The Wilcolator Company, 1001 Newark Ave., Elizabeth, N.J. *In Canada:* Wilcolator (Canada) Ltd., 221 Evans Ave., Toronto 14, Ont. *Export Address:* Wilcolator, 1010 Schaff Bldg., 1505 Race St., Philadelphia 2, Pa.



Front View Type GA — Side View Type GA

SPECIFICATIONS

Standard temperature range: 0°F min.; 585°F max.

Special temperature ranges: To customer's requirements

Type G1-A: Contacts open on temperature rise

Type G2-A: Contacts close on temperature rise

Contact rating: (Type G1-A) 30 amp, 125 and 250 v a-c noninductive load

Motor ratings: (Type G2-A) 120 to 240 v a-c; running current—14 amp; locked rotor—60 amp

Mounting: Back of panel or in enclosure

Terminals: Screw type, AMP or Arkles; standard shaft size—¼ in. flatted to .156 in.; length to customer's specifications

THE Wilcolator COMPANY

MANUFACTURERS OF LIQUID EXPANSION ELECTRIC THERMOSTATS FOR:

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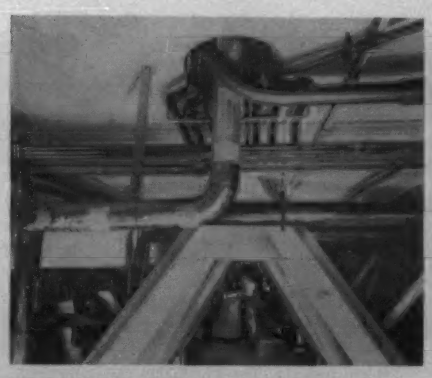
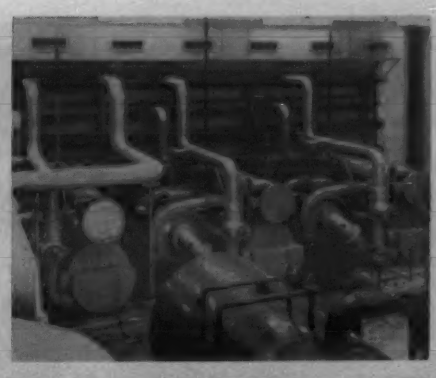
ALL WILCOLATOR THERMOSTATS ARE UL LISTED AND APPROVED



AIR HANDLING UNITS in space frame supply conditioned air up through hollow support columns to second floor and through ceiling diffusers to first floor. Sprinkler system risers and drainage and vent pipes also use the hollow columns.

VARIDIRECTIONAL punkah louvers in the support columns diffuse air to manufacturing areas. They have capacities up to 4,000 c.f.m. each.



THREE TRANE centrifugal machines supply 1,200 tons of refrigeration to air condition the $5 million plant.

SNOW WHITE area, where air is kept at 20% r.h. through extra dehumidification. Air Conditioning pillar can be seen at top right center.

ment required extraordinary fabrication for sealing purposes.

All ducts, both round and rectangular, must be air tight. Joints have rubber base gaskets and all seams are sealed.

Ducts from air handling units to the Snow White area are sealed and caulked at floor openings. Special drum type varidirectional air diffusers are used in this area.

Temperature Controls Are Pneumatic

All temperature controls used both for the building in general and for the Snow White area, are pneumatic and are supplied by Johnson Service Co.

In the space frame, access holes on a grid of 10.5-ft. center lines are installed in the upper and lower slabs. Through these holes the various facilities and utilities are fed directly to the required usage points.

Unused access holes are filled with grout. As future requirements dictate use of additional facility entrances, the grout can be punched through for access of facility carriers.

A predetermined number of access holes are grilled for return air to the space frame area which serves as a return air plenum for manufacturing areas outside the Snow White area and for offices.

Equipment Room Extends Over Two Levels

The mechanical equipment room is located at the northeast corner of the building and extends over two levels. Floor is at the same level as the stub column area, or three feet below floor level of the space frame. A mezzanine surrounding the mechanical equipment room is at the second floor level.

Lower level contains the refrigeration equipment and Allis-Chalmers motor controls for the air conditioning system, the main steam boiler, air compressors, deionized water equipment, and American Air Filter electrostatic air filtering system.

Upper level contains a power distribution system for the equipment in the room, sheet metal, electrical, and plumbing shops, and equipment for the primary air supply, fresh air supply fans, etc.

The Marley cooling tower is located outside, immediately north of the mechanical equipment room.

General contractor for the Semiconductor-Components building, first of a number of buildings planned for this site to serve research, manufacturing, and administrative functions, is Robert E. McKee, General Contractor, Inc., of Dallas.

McKee also has the contract for the Central Research Laboratory, second building in the group, which is expected to be completed early in 1959. The $3 million structure will be air conditioned with equipment in the basement for under-floor distribution through the floor slab. The building will consist of three 42 by 462-ft. connected one-story and basement wings, each on a different level.

Mechanical contractor on the Semiconductor-Components building was Beard Plumbing Co., also of Dallas. Mechanical engineer was Thermobank, Inc. of Detroit; electrical contractor, Harmon Electrical Construction Co. of Dallas; and architect, Ford & Colley, Architects, Corpus Christi, Texas.

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For walk-in coolers. 2600 to 10,800 BTU/hr. capacity at 10° T. D.

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For reach-ins. 1000 to 3000 BTU/hr. capacity at 10° T. D.

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MODEL U
For small applications. 850 to 1500 BTU/hr. capacity at 10° T. D.

MODEL UM Mullion Unit
For reach-ins and dough retarders. 1300 to 2300 BTU/hr. capacity at 10° T. D.

MODEL D
For beverage boxes and back bars. 1300 to 2300 BTU/hr. capacity at 10° T. D.

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Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

At this point two policemen entered the store to check a violation of Santa Monica's prohibition of sidewalk displays.

Noting and smelling Sidney's condition, they rushed him off to the drunk tank of the city pokey. Thereupon serviceman Sidney was arrested for violating Section 4204 of the municipal code.

(This regulation says, in effect, that it's illegal to be spozzled on any street, thoroughfare, alley, sidewalk, or public place within Santa Monica, or to annoy anyone thusly and theretofore.)

Steadfastly maintaining that his constitutional rights had been violated, Sidney announced he wouldn't pay the $5 fine assessed. His employers applauded this stand, allowing that they weren't going to have Sidney "pushed around."

Scene shifts to a municipal court. Waiving a jury, attorney for the defendant asked that the case be dismissed. He argued that Sidney was improperly arrested because his client hadn't annoyed anyone in violation of Section 4204 of the code.

The officer who arrested Sidney confirmed this contention. The defendant couldn't have been bothering anyone, because he had passed out! And he was in a private place!

Nevertheless the magistrate found Sidney guilty.

Once again the scene shifts—this time to the appellate department of the State Superior Court, where briefs were filed. A day later the judges issued their decision (in favor of our friend).

It was a great victory for private enterprise *and* privacy.

All this litigation cost refrigeration serviceman Sidney and his employers several hundred dollars. But they believe they "struck a blow for freedom."

We Aren't So Original Any More

Sociologists deplore the conformity and sameness of American civilization nowadays. It seems we dress alike, talk alike, behave alike, do the same things, etc. All this conformity to a pattern destroys individuality, the sociologists and philosophers mourn, with good reason.

Individuality—the courage to act and think differently from "the herd"—is the imaginative ingredient which produces progress, they maintain.

As an example, they cite the fact that few children nowadays are bestowed original names. Back in the days when some of our greatest political and social thinkers — Franklin, Jefferson, Madison, Hamilton, Rousseau, Mill, Bacon, Montaigne—fluorished, parents gave their offspring baptismal names calculated to set them apart from the crowd.

Researcher Nathaniel Bowditch turned up some of these delightful dillies from that era:

Hate Evil Nutter, Joy Againe Sutter, Faint Not Wine, Hardbottle Grimston, Savage Bear, Opportunity Hoppin, Lemon Peel Harding, Pheasant Crisp, and the brothers Something Newe and Nothing Newe.

On the distaff side Bowditch authenticated such delightful female cognomens as Miss Submit Nutting, Christmas Carroll, Always Gentle, and Prudence Grimm.

As a dedicated football fan, our favorite of the Bowditch lot is Mr. Invisible Lightfoot. If he lived up to his name, he could have been the greatest running back of all time.

Market Survey Research

"Vodka has become fashionable among my fancy-pants friends," writes Jabe Pooler. "So I asked a small group to try a blindfold test—to help me determine the tastiest brand. I had quite a few of the popular brands for them to sip," he continues. "Also had a little bottle of colorless Kentucky Moonshine I picked up while on vacation.

"The moonshine won in a walkaway. Four out of five of the blindfolded connoisseurs declared that the corn likker was the finest of vodkas. It had a soignee bouquet or something.

"When I return to Kentucky and tell that 100% American moonshiner that he's making superb Russian vodka he'll probably shoot himself—or me."

Final Thoughts

Everybody should listen to a sermon occasionally. Including those who go to church.—FRANKIN P. JONES.

Criticism is the disapproval of people, not for having faults, but for having faults different from ours.—*York Trade Compositor.*

To have good judgment we must have sound knowledge.—W. D. HOARD.

The rarest gift is the ability to generalize accurately. Most people go to one or the other extreme: (1) they never draw any conclusions at all from a world of observable fact, or: (2) they draw wildly incorrect conclusions from next-to-no data.—*Management Briefs.*

There is no room today for small business. The little guy is going out of business—union or no union.—JAMES HOFFA, Teamsters Union official.

PHOTO ABOVE shows one of the Tyler cooling units, made of Revere Copper Tubing and fins of Revere Aluminum, in the final stages of assembly.

MIDDLE PHOTO shows completed condensing unit in place in one of the Tyler Refrigerated Sales Cases. Revere also supplies aluminum sheet in plain and embossed finish for miscellaneous cabinet trim and structures.

BOTTOM PHOTO SHOWS one of the newest Tyler Sales Cases installed in a modern super-market. Tyler, a pioneer of important improvements in this type of equipment, makes units for every type of perishable food and for every store need.

A combination that produces superior commercial refrigerators for TYLER customers –

fresher, more palatable foods for your table

Because of its distinct, money-saving advantages the combining of aluminum fins with copper tubing has been rapidly growing. But this very combination also calls for care in assembly as well as care in the manufacture of the aluminum sheet and copper tube.

That's why Tyler Refrigeration Corporation, Niles, Michigan, tells us they use Revere Aluminum Sheet and Revere Copper Tubing in fabricating coils for their Commercial Refrigerated Sales Cases.

For, in addition to the uniform wall thickness and close, even grain structure which permits bending without distortion, Revere Copper Tubing is readily brazed or soldered, thus making it easy to put on return bends. And, since copper expands so readily it assures a tight fit with the aluminum fins.

Add to this, the accuracy of gauge of the Revere Aluminum Sheet and its lightness, plus the conductivity properties, the non-rusting qualities and ease of fabrication of both copper and aluminum and you have an efficient, economically operating cooling unit.

In on the ground floor, Revere, because of its many years of intimate knowledge of both copper and aluminum is qualified to assist manufacturers of refrigeration, air conditioning and heating equipment in their development, with gratifying results.

Why don't you take advantage of this accumulated knowledge and consult with Revere's Technical Advisory Service on *your* problems?

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Today "Freon" is so dry and pure that the published specifications for "Freon" refrigerants are the accepted standards of quality for the entire industry. Best of all, "Freon" costs no more than refrigerants that are supposed to be "just as good". So *insist on "Freon"*—the time-tested, premium quality refrigerants—now identified by cylinders with the new gold colored hood cap.

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THE NEWS SEEKS ANSWERS TO THE MOST CHALLENGING QUESTION IN THE INDUSTRY TODAY

"WHERE DO WE GO FROM HERE?"

IN RESIDENTIAL AIR CONDITIONING

The November 10 Issue Will Report the Results of a Industry-Wide Study of Important Influences in Every Phase of the Residential Market

To give an authoritative answer on "Where do we go from here?", AIR CONDITIONING & REFRIGERATION NEWS is going into the field to ask the only individuals in a position to know—top executives in the year-round residential air conditioning field including manufacturers, heating and cooling contractors, distributors and dealers.

Here are just a few of the explosive questions to be answered:

- Do enough families truly want air conditioning to provide a substantial market with real growth possibilities? If not, why not?
- Are present-day installation practices and costs dampening enthusiasm for the product? If so, how can they be improved?
- How much of the residential market can and will be supplied by window and through-the-wall units?
- How much progress can we expect in the next five years in the application and sale of reverse cycle units and supplemental electric resistance heating?
- Where, how and by whom, has imagination been applied to *selling* residential heating systems?

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The "WHERE DO WE GO FROM HERE" issue of the NEWS will find some answers to the above questions—and many others—in a dynamic symposium technique which is sure to generate outstanding interest.

This special editorial job is bound to have great retentative value. It will be discussed, studied, routed and acted on for months to come. And it will stand as one of the most valued showcases for your advertising message to come along in many a year.

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Remember—it's the November 10 issue. Final Forms close October 29.

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Find Many Extra Benefits

Wholesale Drug Warehouse Air Conditioning Improves Employe Relations, Efficiency

DAYTON — "It's wonderful. Probably the best thing we ever did in the way of employe relations, and to increase over-all employe efficiency."

That's how Arthur B. Sporlein, an official of the Dayton Economy Drug Co., wholesaler of items handled by retail druggists, feels about the complete air conditioning of the firm's two-story headquarters here.

"And it was put in strictly for employe comfort and well-being," said the wholesale drug company official. "Sure, the air conditioning probably helps to insure the longer life of some products, and keeps the stocks of merchandise cleaner, but it wasn't necessary for those purposes.

"But it was necessary for our employes. On the second floor of our two-story building, which has a flat roof, the people who were making up orders for our customers, just couldn't work up to par in the summer months.

"Despite our putting in ventilating equipment and extra floor fans, there were some instances of near heat-prostration, and we often found people from the second floor slipping down to the alley in the rear of the building to get some temporary relief from the heat. And the efficiency in all the second floor departments went way down."

So the management of the drug wholesaling firm decided to air condition the second floor of the building only, and L. O. Warner, Carrier distributor, did the job with a 50-ton central system.

"The benefits were so great, and the people working on the first floor so envious," Sporlein recounted, "that it wasn't long before we decided to air condition the first floor of the building, even though conditions there were not nearly so much of a problem in the summer as on the second floor.

"But we found many extra benefits in air conditioning the first floor. For example, each August we have an annual 'Christmas merchandise showing' for our customers from the entire area which we serve. They are all brought into our building to see displays of the special merchandise that will be available for the Christmas trade.

"We would serve food and have a party for them, but it was kind of rough if we had our usual August weather. But with our air conditioned quarters, the August party has become something to which our customers really look forward to attending.

"Then as our business continued to grow, we had to add to our billing staff. We had no choice but to crowd more employes and accounting and billing machines into the same space.

"I think this would have been impossible unless those quarters were air conditioned.

"Then our telephone order department is a busy, and of necessity, a somewhat confined area, and those who work there say they have been able to work faster and better since we installed the air conditioning.

"All in all, I'd say it is as good as, if not the best, investment in facilities that we ever made."

The Dayton Economy Drug Co. is a division of the Cincinnati Economy Drug Co., which has another division in Atlanta, and Sporlein says the Cincinnati and Atlanta quarters are also air conditioned.

One thing that pleased the drug firm's management was the way in which Warner handled the installation. There was a minimum of disruption of working time, for one thing, and the equipment took up no usable space.

The building had formerly been occupied by an automobile agency, and a concrete ramp which extended from the first to the second floor was of no use to the drug firm. Warner used this ramp area to mount his compressors to handle the 50-ton system for the second floor, and the 40-ton system for the first floor.

Concrete flooring and beams provided sturdy support from which to hang the air handling units, and thus have them installed without taking any usable space.

While water in Dayton is usable without restriction and not too costly, there were no water lines going into the building large enough to handle the volume needed for the installation, and also, no storm sewer facilities were available.

Considerable construction and street-tearing-up work would have been needed to provide the necessary facilities, but Warner suggested the use of an evaporative condenser setup, which cut water consumption to the point that no such construction work became necessary.

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I'm an expert with years of world wide experience. In fact, wherever refrigerators, freezers or air conditioners are repaired by smart businessmen, you'll find me. My name is Frankell's Hermetic Compressor Opener. I can open any shape compressor (up to 20" in dia.) regardless of the weld. And best of all, I take only two minutes of your time to do it! Or any one's time for that matter — I'm that easy to operate — No Gimmicks! No Fixtures! No Jigs! Remember, when you open and repair a hermetic compressor, the profits are big. And just one hermetic job a week and I'm paid for in full. I'm recommended by the world's leading firms. These are just a few of my references: American Motors Corp., Kelvinator Div., Detroit, Mich.; Siemens, Erlanger, West Germany; Sealed Unit Parts, N.Y.C.; Tecmar-Carrier, Maricaibo, Venezuela; Jones Refrigerator Co., Raleigh, No. Carolina, and many more. I cost only $695 net F.O.B. N.Y. or I can be rented monthly for an amazingly low cost. Write for complete information today. Write Dept. G Frankell Manufacturing Co., Inc., 1074 Home St., N.Y. 59, N.Y.

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sales tip for servicemen...

Now is the time to check all refrigeration and air conditioning jobs using cooling towers. Cooler weather is coming . . . that means lower cooling water temperature which drops refrigerant head pressure and reduces capacity of the system. To correct this . . . to reduce tower maintenance and compressor lubrication problems . . . install the Penn 3-way water valve! It maintains uniform head pressures regardless of outside air temperature and humidity. Don't miss this "natural" for extra sales and profit!

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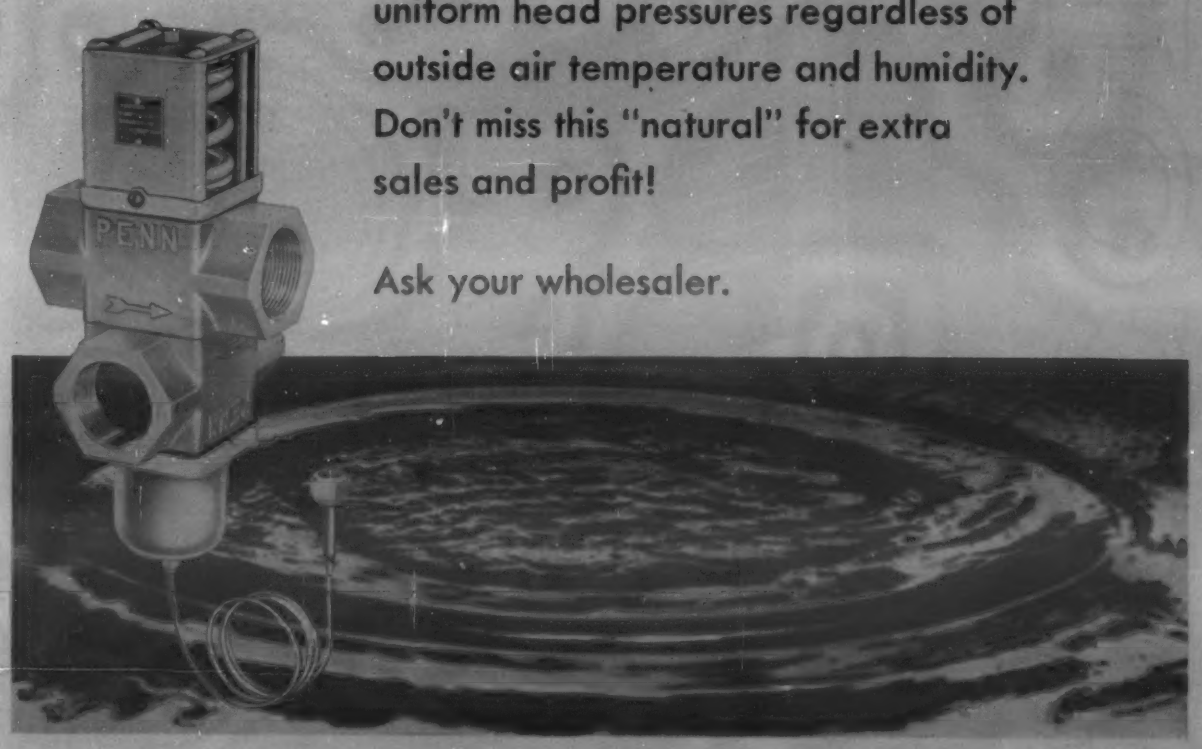

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Modern Installation and Service Tools, Instruments Save Labor, Increase Income, and Impress Customer (Part Three)

Editor's Note: This is the third and last instalment in a series describing modern installation and service tools and how they can be used to advantage by installation crews and servicemen. The author is A. E. Manning, president of Refrigeration Service Engineers Society and vice president of a leading New Jersey service firm.

"Pressure recorders, both on the suction and discharge side of the system, produce the electrocardiagram from which you read the pulse, the faulty valves, the high or low pressures and the restrictions. They are real time savers because they can be attached and you can go on your way to other jobs to return hours later or next day and from the chart check pressure rise and fall, expansion valve action, leaking discharge and suction valves, long running time, and many other things. Once you learn to interpret one of these charts you can save many valuable hours," Manning advised.

"The time temperature recorder is another device which can be applied in much the same fashion as the pressure recorder in that you can install it and go on your way to return later and have a record of running time and temperature.

"These devices are available in time and temperature combination, and running time and temperature separately.

"I have found many occasions where an owner insisted that the condensing unit rarely stopped. I know you are painfully familiar with the 'Runs Continuously' call. For these you will find that a small self-starting electric clock can be wired into the motor circuit on one, two, or three phase, 115, 208, or 230 volts with very little trouble. When you return hours later it will have your report in hours and minutes of running time ready for you.

"Temperature measurement is becoming increasingly critical, and for very close measurement thermometers using a thermocouple lead to attach to the surface whose temperature is to be measured or a probe to check internal temperatures of products are most accurate.

"One of these portable devices with one probe and three leads can be purchased for $75 or thereabouts and really take the guesswork out of temperature measurement. There are several makes of these devices on the market, and any one which has a shielded movement to prevent interference from any stray magnetic fields is satisfactory.

"Resistance thermometers are in this class and many of these have temperature measurement, with up to four leads which can be read in sequence, voltmeter and wattmeter all built into one cabinet which is small and readily portable weighing only 10 or 12 lbs.

"These devices are particularly useful in combination refrigerator and freezer service where temperatures of air and evaporators in both freezer and refrigerator can be read at start and stop of unit, running time checked, wattage at start and during pull-down checked, voltage fluctuations noted, and all without opening the cabinet doors.

Leak Testing Relatively Simple

"Refrigerant leak testing is one service operation that should be relatively simple, but I still have not found the absolutely positive method of locating a refrigerant leak. Probably the human element has much to do with this but every now and then we come upon one which requires extreme measures to locate," Manning commented.

"Leak testing had used soap solution, sulphur candles, litmus paper, and strong ammonia water up to the advent of Methyl Chloride. This refrigerant was recognized as being hazardous from a flammability standpoint and pungent tracers were included in systems using this refrigerant.

"With the coming of the chlorofluoro methanes and ethanes, new leak testing techniques were necessary. The alcohol flame type halide torch was the forerunner of the flame type torches we have today and many are still in use.

"The chief drawback to the alcohol torch is the fact that every now and then the serviceman waits to pump pressure on the torch until he is in the area in which the air is contaminated by the refrigerant leak. This air compressed into the tank with the alcohol serves as a concentration of refrigerant contaminated air and the torch indicates a leak everywhere.

"Acetylene, propane, and butane-fueled torches have largely supplanted the alcohol torch and while the so-called Prestolite tank with its regulator and hoses is a bit heavier than the alcohol hand torch, its fuel cannot contain refrigerant before it is burned.

Smaller Halide Type Torches

"Smaller torches of the halide type, some with throwaway type fuel containers, using propane, butane, or liquified natural gas have appeared on the market. The sizes have been reduced until there is now available a flame type leak detector which is extremely sensitive and can be carried in the coat pocket. The fuel cartridge contains a little over an ounce of butane which lasts for about 35 minutes.

"There are several electronic leak detectors, but most are not particularly adaptable to service operations in the field. The Type H General Electric leak detector can be carried into the field where conditions warrant such extreme measures. These units cost around $700 and are certainly not justified in even

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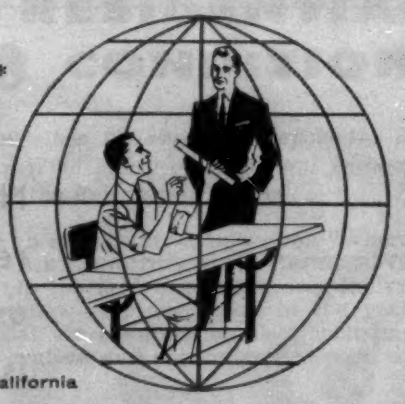

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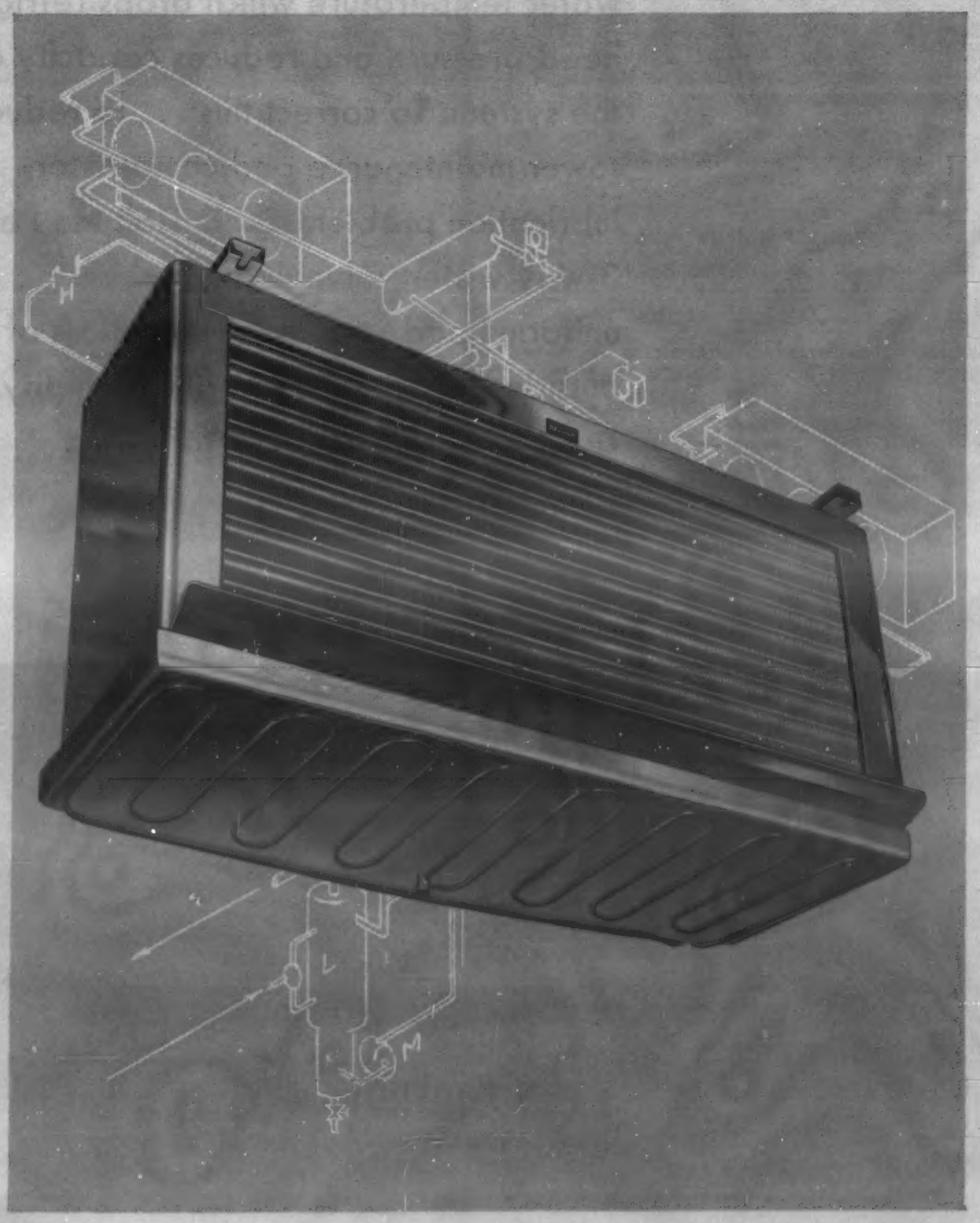

RECOLD

the larger service operation. They can be rented in some of the metropolitan areas for special jobs and this procedure is what I would recommend.

"Black light has its place as a leak detector, but it has certain limitations. Black light will not show refrigerant in its beam but the mineral oil carried by the refrigerant has a fluorescent appearance under the black light and thereby indicates the location of the leak.

"Obviously if the surfaces can be thoroughly cleaned of oil and then after elapse of a short time, the fluorescent glow of a deposit of oil appears under the black light, it is reasonably sure that there is a leak at this point. These devices are not expensive, but as I said before, are limited in their application.

Vacuum Pumps Save Costly Callbacks

"Vacuum pumps have as wide an application in service as they have in installation. Major repairs causing a system to be completely discharged and opened for any period call for the use of a vacuum pump in evacuating and drying the system before putting it back in service.

"The new component change policy of the manufacturers of refrigerators, freezers, window type air conditioners, and air dryers make the use of a vacuum pump the insurance against costly callbacks due to moisture freezeouts. The use of a vacuum pump will often be the difference between whether a motor compressor assembly will or will not have to be replaced. The vacuum pump is truly a time saver in service operations," Manning declared.

"The measurement of air, its quantity, velocity, and direction is very important to the service agency.

"The open self-service refrigerated case and especially the open self-service freezer are especially vulnerable to air currents blowing over them or worse into them. To get a supermarket operator to consent to changes necessary to correct such a condition without an instrument to prove your point can be attributed to sheer luck and nothing else. This, however, is the smallest application of instruments for the measurement of air. The service of air conditioning and heating systems calls for some good air instruments.

Draft Gauge Is Old Standby

"The draft gauge, which indicates positive or negative pressures in inches of water, is the old standby. Used for years by heating people, it has found its place in comfort cooling and year-round air conditioning.

"The velometer, an electronic device, is a very sensitive instrument which measures velocities of air movement. Most devices of this type are scaled for readings from approximately 5 to 800 or even 1,000 f.p.m. It is direct reading, it being necessary only to hold it in the air stream and read the feet per minute on the scale. These are not expensive.

"Another device in this price class which offers practically the same service is the airometer. This is a fan driven indicator which indicates air velocities on a revolving scale in feet per minute. The large electronic device both in performance and price in the air movement measurement field is the Anemotherm. This is priced around $200 and measures temperature, pressure, both positive and negative, and air velocities in feet per minute.

"The instrument is carried on a strap over the shoulder of the operator in such position that the scale is before him. The probe is held in one hand in the air stream and a series of knobs and switches permits temperature readings in ranges from below zero to 200° and air velocities to 2,000 f.p.m. A special attachment to the probe converts it to a draft gauge when it will record positive or negative pressures on the instrument scale. This instrument, if you do much air conditioning and heating service, will save time and labor for you.

"One instrument about which little is ever said in our business is the light meter but with the coming of self-service refrigerated meat cases where great expanses of fresh meats cut and packed are displayed under lighting designed to really make them look attractive this device can save you some time and money," Manning suggested.

Light Meter Can Solve 'Discolored' Meat Calls

"Many service calls complaining of discolored meats and laying the blame on the refrigerating system can be corrected with the use of the light meter and the substitution of lower candle power lighting.

"These instruments are light, can be carried in your pocket, are very sturdy, and if you do market service may save a few dollars," Manning concluded.

(The End)

Fan Survey Shows Big Distributor Stocks

NEW YORK CITY—For the third successive year, many electrical distributors are faced with a serious overstock situation in fans.

The fan and ventilating committee of the National Association of Electrical Distributors made this finding from a survey taken among members as to their stocks on Aug. 30, 1958.

The survey also found a great majority of distributors rating the 1958 fan season as "fair to poor."

"In view of this grave situation," the committee's report said, "it is believed that many distributors will start the 1959 season with stocks held over from this year. Others no doubt, will be more conservative in pre-season orders as well as large orders during the season."

The survey found the northeast section of the country (Atlantic Coast states from Virginia northward, including West Virginia and Pennsylvania) hardest hit by fan overstocks brought about by a cooler than average summer in that region.

Southern and western states, hard hit by overstocks in 1957 finished the 1958 season with a considerable reduction in their stocks. Situation in the midwest remains the same as 1957.

However, the report said, several midwestern distributors reported individual stocks as high as $65,000 to $75,000. A metropolitan distributor in the northeast region reported an inventory of $150,000.

The survey did not include kitchen, bathroom, and exhaust fans—or other types of fans which are not considered as sensonal units.

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Position of the oval image in the port indicates refrigerant supply. If the oval is at a right angle to the flow, the system is fully charged. If it's parallel to the flow, the refrigerant supply is low.

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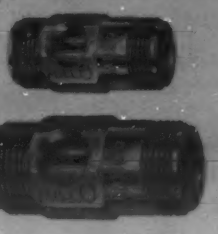

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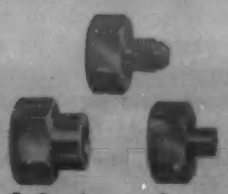

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'The Conscience of the Industry'

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They'll Do It Every Time

by

Jimmy Hatlo

WHEN RUTLEY HAD BEEN WORKING FOR BULLGRAVY A FEW YEARS, THE OLD BOY PAINTED A ROSY FUTURE FOR HIM...
RUTLEY... I INTEND TO RETIRE SOON... I HAVE NO CHILDREN... NO RELATIVES AT ALL, IN FACT... STICK WITH ME, AND IN NO TIME AT ALL THE BUSINESS COULD WELL BE YOURS, LOCK, STOCK AND BARREL...
THANK AND A TIP OF THE HATLO HAT TO NAP GUCCIONE, 307 E. 77TH ST., NEW YORK 21, N.Y.
THAT WAS TWENTY YEARS AGO.... OH, YES... TODAY BULLGRAVY MARRIED A WIDOW WITH THREE SONS...
IT'LL BE GREAT HAVING THE BOYS RUN THE BUSINESS WITH ME...
BULLGRAVY RUTLEY, INC.
POP!
8-25
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JIMMY HATLO

Basic Facts About the Industrial Market for Air Conditioning

(Concluded from Page 1)

already are air conditioned. At least, that's a thoroughly-agreed-upon curbstone opinion.

Here are some interesting ARI figures on the dollar value of central station air conditioning installations:

1950	$241,440,000
1951	$278,200,000
1952	$252,920,000
1953	$295,040,000
1954	$378,810,000
1955	$434,120,000
1956	$528,180,000
1957	$598,900,000

This is a big business, to be sure, but not nearly so big as it could and should become.

Most *new* big building construction is air conditioned nowadays—or allows leeway for installation of air conditioning later. On the other hand, the relative saturation of air conditioning in *existing* buildings is so infinitesimal that a tremendous potential for this industry can be projected well and far into the future.

Sizes of systems employed in office and factory construction range from 25 tons up to gigantic 8,000 ton masterpieces. Within such a wide range of sizes, there are many varieties of systems available for almost any conceivable type of commercial building or factory.

Particularly applicable in new construction (since provision can be made for the space requirements of condensing units, risers for ducts and piping, and the structural loads imposed) the 150 ton or larger central station air conditioning design has become *de jure* for substantial new buildings.

At its heart such a system employs a centrifugal compressor, a steam absorption condensing unit, or several conventional compressors running in series.

Cooling usually is accomplished by either of these two methods: directly cooling air and circulating it through a network of ducts; or cooling water and distributing it through piping to each space unit. Rarely in jobs of this *genre* is a refrigerant piped directly to individual room enclosures.

Heating of a large industrial or commercial building often is conducted separately from an air conditioning complex. However, it *can* operate in conjunction with the cooling system—utilizing the same ducts, piping, and coils. Heating, like cooling, is accomplished by heating air directly and blowing it through vents, or by circulating hot water or steam through radiators.

Because of their expert concentration on air conditioning, and because they normally assume prime responsibility for the operating success of an industrial installation, manufacturer's field engineers frequently become important influences in the selection of system components.

These fellows, as do contractors, choose a slew of complementary equipment—diffusers, coils, control systems, air moving equipment, etc. More often than is generally realized, large-building installations are efectuated entirely by the field construction division of a huge air conditioning manufacturer, such as Trane, York, or Carrier.

In many more times, however, a local contractor is the Big Boy. In fact, most times, unless the building is a skyscraper or gigantic factory. Another thing a contractor has going for him:

Often the only satisfactory manner in which old buildings can be air conditioned, either because of space limitations or structural design, is through the use of "package units." Thereupon a contractor or dealer regularly reigns supreme.

Package units offer especial advantages in commercial and industrial buildings: you need cool only those areas where relief is most needed. Also, package units are easily serviced, and operational failures cause only partial loss of cooling—as opposed to complete loss when a central system goes out-of-whack.

Complete air conditioning jobs of less than 150 tons capacity play a big role in both new construction and existing buildings. too. They are much like their Big Brother central systems, except that they utilize off-the-shelf components and condensing units.

In some cases two or three separate 100-tons-or-less systems may be utilized to cool a single building. Gas engine driven compressors, and gas absorption and adsorption units, occasionally become a factor in this median market.

Inasmuch as this "smaller" central station equipment is equally adaptable to new construction or to existing buildings, and because said systems are designed around standard units and components, brand names often aren't specified before bids are let.

That situation naturally diminishes the influence of a manufacturer's field engineer, or a consulting engineer, while increasing the role of the contractor. In fact, most such medium-size jobs are designed and specified entirely by a contractor.

On those rare occasions when a brand name is specified, it's on an "or equal" basis. Because of the wide variety of units and components available, a contractor enjoys a relatively free hand in his selection. You see, he has the prime responsibility for a successful, operable, serviceable installation. And he takes that responsibility seriously.

There are, of course, many definitions of a "contractor" and many types of contractors. Those contractors which can finance the largest industrial air conditioning installations sometimes are referred to as "mechanical contractors." This title implies that said designated contractor is active in all those trades involved in mechanical construction; i.e., sheet metal fabricating, piping, refrigeration, electrical work, steamfitting, plumbing, and heating.

Generally speaking, however, an *air conditioning* contractor is responsible for most such installations—whether he be an "old line" refrigeration or heating contractor who sub-contracts piping and electrical work, or whether he may be an occational electrical or plumbing contractor who sub-contracts the more important refrigeration and heating or plumbing assignments.

Most industrial air conditioning sales involve several influencing factors. Degree of influence of any one individual or firm depends on the type and size of the job, plus the circumstances surrounding it. To get into these purchasing situations, in depth, equipment salesmen need to run around all bases on this diamond.

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Report on Education

Another article in a series dealing with all levels of education and training in the air conditioning and refrigeration industry.

By Frank J. Versagi, Technical Editor

4. Trade Schools

Some trade schools inappropriately call themselves or are called technical institutes. While it is true that many of the courses offered at the two levels are alike, the point is that a trade school education leaves the student at one level while a technical institute education terminates at a higher level.

We have already defined the place of the technician, who is a graduate from a technical institute.

The good graduate from a trade school may be defined as a craftsman of more-or-less skill depending on his aptitude and former experience. The trade school concentrates almost exclusively on the manipulative skills, introducing only as much theoretical matter as is necessary for a good understanding of the learned skills.

A man is exposed to equipment and tools and taught to work with them.

There are trade schools which will object to this description of their offerings, and they will point to the academic subjects included in their curricula. However, the forte of the trade school is to give a man enough familiarity with the tools and equipment of the trade to allow him to hire out as an apprentice or to take on straight service work on his own if he chooses.

Milton O. Larson, former head of refrigeration training, Greer Shop Training, Chicago, states "trade schools are and should be restricted to turning out competent servicemen."

While agreeing that trade schools should teach principles of refrigeration so the serviceman knows *why* he performs the service operations, Larson points out that, for the man who wants to get into layout, planning, and designing, the technical institute is the next step. (Greer also offers this higher level training.)

"But technical institute training should still include emphasis on service," Larson holds. "Too many companies and educational institutions look down upon service as a necessary evil. We may as well admit that it is here to stay."

Privately-owned trade schools are frankly in education for profit, admits R. C. Anderson, president of Commercial Trades Institute. "But this in no way reduces the merit of their offerings."

When discussing their role in education, trade school principals tend to be a bit on the defensive. This is in large part due to the sour reputation earned by several irresponsible trade schools which sprouted after World War II to take advantage of GI Bill money.

By now, though, most of the remaining trade schools have legitimate offerings which cost somewhat more than comparable courses at public trade schools, but which can be completed in much less time.

For example, to go through basic refrigeration theory and shop work on domestic and commercial units, including diagnosis and trouble-shooting, might take up to three years at the one-night-a-week pace of most public schools. The same subject matter can be covered in three months at a trade school—taking the course full time at 40-plus hours per week.

Because they are private companies and must only meet "fair-and-square" requirements, the offerings of the many trade schools vary greatly, as do the costs of the courses. It is difficult for the student to judge the caliber of the school by the appearance of the plant, or the advertising and publicity releases, or by the claimed acceptance of the school's graduates by industry.

In fact, if there is an outstanding weakness of trade schools, it is that employers outside of the immediate locality tend to look down upon the training offered by these schools. On the other hand, engineers have been known to take trade school courses "to get the feel of the stuff I theorize about."

Again because control on them is limited, the caliber of instruction at trade schools is extremely erratic. Some of the most effective and some of the least effective teachers observed by the NEWS were found in trade schools. Generally, such schools have a preference for the practical man—the fellow who is working in the field.

While this bias sometimes turns up good teachers, often the busy serviceman does not devote enough time to preparing for his part-time teaching job. Sometimes, too, the man may know quite a bit, but without any formal teaching training, does not have the ability to put the material across to the students.

A typical day in a trade school consists of a couple hours of lecture, then shop work on the same subject.

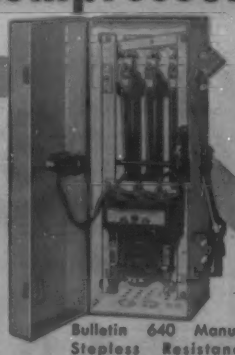
For example, if the lecture is on controls, mock-up panels and cutaways, actual controls will be worked with in shop. Some of the trade schools have enough equipment so that each student can work individually on projects. Many more, however, are so equipped that three or four students work on a specific piece of equipment. This method has advantages and disadvantages which will be discussed in a later article when we consider teaching techniques.

Where state laws allow, actual service work is fed the students by the school's taking in outside work. Thus, the class will actually diagnose and service a defective domestic refrigerator or carbonator or reach-in case. For the student who applies himself and who is not afraid to dirty his hands, the trade school offers a good return for his investment in time and money.

Another advantage, from the standpoint of those whose formal schooling has been cut short for any reason, is that most trade schools have no rigid formal requirements for entrance.

(To Be Continued)

Velvet Smooth Starting for Your Large Compressors



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Commercial, Industrial Air Conditioning Survey Defines Potential Market

4-OWNERS' OPINIONS AND REASONS FOR INSTALLATIONS - *Few Give Customer Demand as Motive*

While owners gave many reasons for installing air conditioning and there were some differences depending upon type of establishment, creature comfort—that of their customers or employes—was the leading reason in all cases.

Increased efficiency from employes was a leading reason only in industrial establishments. Many of the reasons given are tied up with the economics of their particular business involved.

Customer demands was given as a reason by only a relatively few owners. "This might be an area where the industry could help the situation by educating people to expect and ask for air conditioning in any place where they do business," the survey stated.

Expressions of the high degree of satisfaction with air conditioning by present owners, as shown in the survey, would seem to make good sales ammunition to use on hard-to-sell prospects.

The main sources of dissatisfaction seem to stem from poor on-the-job engineering. Insufficient capacity is by far the leading objection.

These findings would seem to point up the importance of the whole area of sizing and installation.

When Owners Were Asked Why They Had Installed Air Conditioning or Rented Air Conditioned Space This Is What They Said

(Expressed In Percentages)

	Total Retail	Total Other Commercial	Industrial
Comfort of customers	45	20	6
Comfort of employes	25	24	45
To keep cool	11	24	12
To help business	14	6	3
More efficiency from employes	6	13	28
Customer demands	6	5	3
Installed by previous owners	6	8	4
All other reasons	21	16	18

Note: Totals exceed 100% because some respondents gave more than one reason.

Satisfaction with Air Conditioning In Commercial and Industrial Establishments Is High

When owners were asked to what extent had the air conditioning accomplished the purposes for which it was put in, this is what they said:

Accomplished purpose very well	87%
Accomplished purpose only fairly well	10%
Accomplished purpose rather poorly	2%
Not specified	1%

Reasons for Dissatisfaction

The 12% of owners who were not completely satisfied gave the following as their reasons:

Didn't cool enough	36%
Unit too small	23%
Needs lot of repairs	14%
Lack of proper circulation	8%
Too cold	7%
Didn't cut down humidity	2%
Installed wrong unit	2%
All other	27%

Complete results of its survey on the Commercial and Industrial market for air conditioning have recently been released by the Freon Products Div. of Du Pont. Because it offers much that will be useful to all who are concerned with the sale of equipment to this market, the NEWS is publishing a condensation of the complete survey in a series of articles. This is the fourth in the series.

Meeting Guide Covers 'Insulating Pitfalls'

LANCASTER, Pa.—An educational meeting guide on the subject "Pitfalls In Insulating Air Conditioning Systems" is being made available to interested groups by the Insulation Div. of Armstrong Cork Co.

The meeting guide, which contains a talk and 27 color slides, shows the results of studies by Armstrong's Research and Development Center.

"The color slides are of actual job installations, showing where insulation failed because of unexpected condensation or sweating and where it was successful," the company said.

The meeting guide, described as a factual, non-commercial presentation, can be obtained by contacting Armstrong's Insulation Div. offices located in most major cities.

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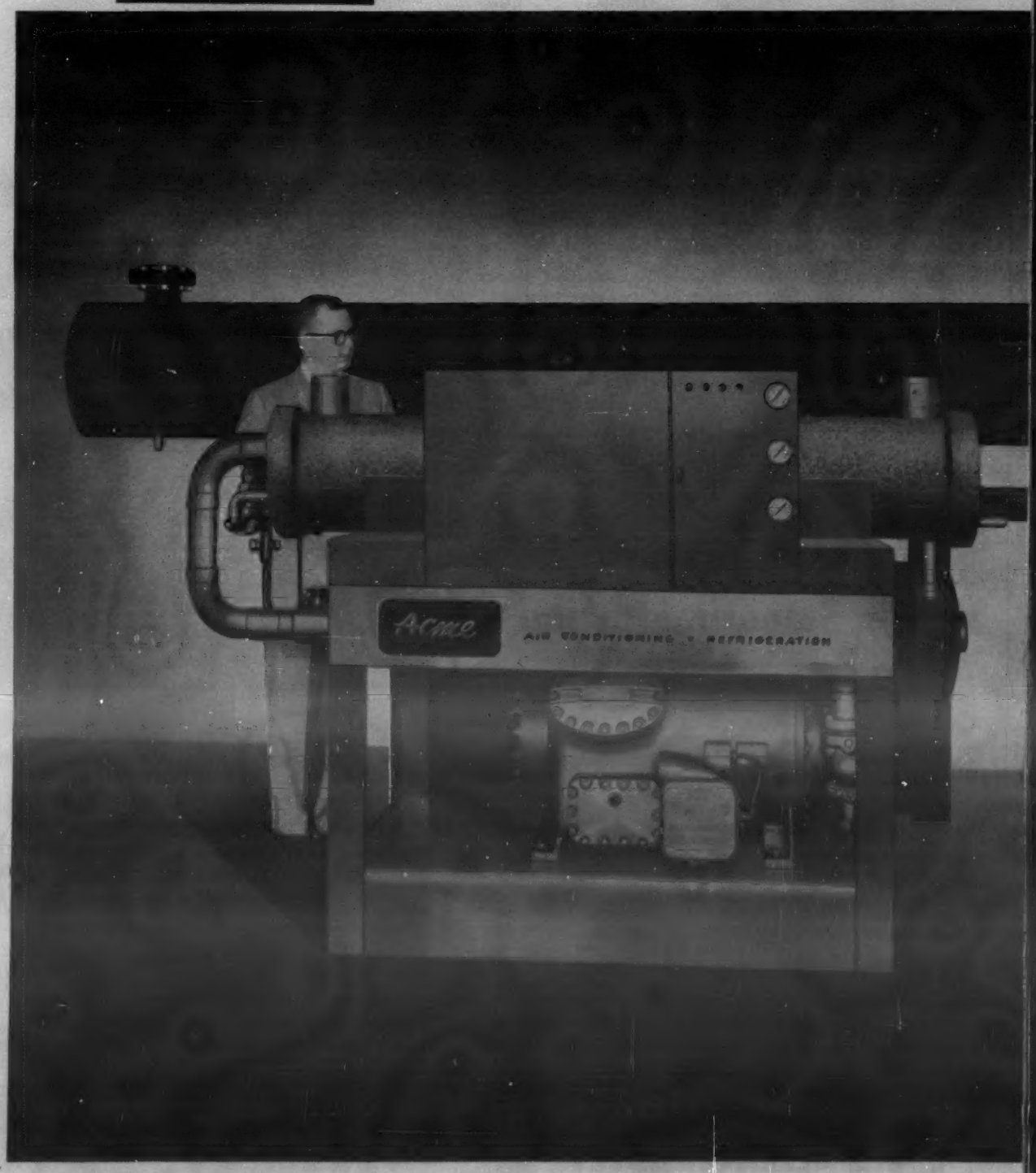

Both have the same capacity of 60 tons. See the difference in size between the old and new.

To Combat Problems

Michigan Heating Men Told of Need for Small Businessmen To Join Forces

ST. JOSEPH, Mich. — Need for small businessmen, particularly those in heating and related industries, to join forces to combat their problems was emphasized by Charles S. Flynn, president of the Michigan Heating and Sheet Metal Association, in a talk to members of the Southwest Michigan Heating and Air Conditioning Association at a dinner meeting here.

As a result of the meeting, the recently-organized Southwest Michigan organization, composed of contractors in the Benton Harbor-St. Joseph areas, unanimously endorsed affiliation with the state organization, it was reported.

"The small businessman just struggles along, taking it on the chin," Flynn asserted. "Except through united effort, he has little opportunity to express his views or make himself heard.

"He often finds himself burdened with unfair or discriminatory legislation which makes it difficult for him to survive in the face of increasing competition. He even finds difficulty obtaining consideration on a local level."

GROUP TO SEEK RELIEF

Flynn said the state group plans an effort to obtain "badly-needed relief" on a state level for contractors in the heating, sheet metal, air conditioning, and related industries. "They've been ignored too long," he added.

INSURANCE PLAN EXPLAINED

Talks by a delegation of members of the Kalamazoo chapter also highlighted the meeting. Fred Anton, representative of the Association Insurance Co. of Milwaukee, explained a group insurance program endorsed by the state association for contractors and their employes.

Similar meetings are planned with contractors in other major cities throughout the state to discuss problems of the industry and urge affiliation with the state association. The membership effort is in charge of William Calverley, Royal Oak, state membership chairman.

C. R. Martelle, president of the Benton-Harbor-St. Joseph group, arranged the meeting of southwest Michigan contractors.

Minneapolis-Honeywell Consumer Education Program Aimed at Boosting Heating Sales

MINNEAPOLIS — A major new consumer-education program has been launched by Minneapolis-Honeywell Regulator Co., aimed at helping heating dealers increase sales "by alerting homeowners to the value of quality heating."

In its third industry-wide sales promotion program of 1958, the company has mapped out a complete merchandising package to allow profitable participation by dealers, the announcement said.

Key to the program is a 12-page, four-color booklet entitled "How to Get the Best From Your Heating System!" Written in language the homeowner can understand, the booklet explains and diagrams the various types of heating systems, how they function, and the equipment used for each.

Also are included tips to the homeowner on how to make sure his heating system is providing the maximum comfort. The booklet also points up to the consumer why his heating system may be outdated, opening the door for modernization sales. And it recommends a maintenance program to enable consumers to get maximum dividends from their heating system investment.

The booklet will be bound into the September issue of *Popular Science* (circulation: 1,203,800) as an advertising insert. Working in conjunction with this unique ad will be a complete program of free merchandising aids for dealers, the company said.

Included are announcement broadsides, sample booklets, material order envelopes, dealer window banners, wholesaler counter cards, newspaper ad mats, and suggested direct mail letters.

Public Apathy Traced To Lack of Knowledge

"All of us in industry are painfully aware of the general public's apathy toward heating," K. L. Wilson, Honeywell vice president, said. "This is basically due to the fact that the average homeowner lacks even basic knowledge about quality heating equipment.

"We hope that this campaign will result in the new home buyer being just as insistent on a first-rate heating system as he is today in demanding ceramic tile on his bathroom floor."

Previous Programs Deemed Successful

Honeywell's two previous industry-wide sales promotion campaigns this year were "Project Warm Hearted House" and a residential air conditioning program.

"Both have met with enthusiastic support from all segments of the industry," according to the company.

"Project Warm Hearted House was aimed at the 20 million homeowners with heating systems more than 10 years old. After rating their heating equipment 'Lovable, livable, or a liability,' the homeowners were eligible for a free $15 checkup.

"A survey of 680 heating contractors in 15 cities showed that the program was an outstanding success. Two-thirds of the surveyed dealers said the program was helpful to their businesses, with four-fifths of them anxious to participate in 1959.

"The lead-building program resulted in 3,000 dealers receiving homeowner calls for heating system checkups, with approximately 1,000 of them receiving four or more calls.

"In June Honeywell launched its central air conditioning program to assist in the educational program necessary to insure the continued growth of this potential giant.

"Approximately 63,200 copies of a homeowner booklet—'Practical Answers to Common Questions About Air Conditioning'—have been distributed."

air conditioning

The Biggest News in Air Conditioning is 50% SMALLER

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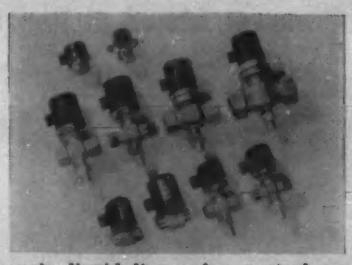
Expand A-P Controls Solenoid Valve Line

Controls Co. of America, manufacturer of A-P controls, Dept. AC&RN, 2450 North 32nd St., Milwaukee 45, announced that it now offers a more complete line of solenoid valves, designed for any application. Featured are:

"A. 291 solenoid valves, available in either brass or stainless steel, offer six orifice sizes to select from. Small in size, the 291 was designed for specific use in tight equipment corners such as vending machines, water softeners, and humidifiers. This new two-way valve can be used for air, gas, water, and oil, plus all common industrial fluids.

"B. The 271, 272, 273, and 274 solenoid valves were designed for



main liquid line valve control on multiple cooling systems as well as a by-pass valve to prevent motor overload during starting periods. Available in four basic models, these valves offer four orifice sizes to select from.

"C. The 67 and 73, considered multi-purpose solenoids, feature brass bodies, silent operation, and complete moisture and frost resistant coil construction. The 67 solenoid valve is available in one orifice size, two body styles, and five different models. The 73 is available in three orifice sizes, four body styles, and four models."

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

Offers Silver Alloys In Small Quantities

For the convenience of maintenance and repair crews, plumbers, air conditioning servicemen, and others who have only occasional use for brazing alloys, a special package tailored to odd-job requirements has been developed by Handy & Harman, Dept. AC&RN, 82 Fulton St., New York City 38.

Two types of general-purpose silver alloys are available in the small-quantity package: "Sil-Fos," which is used to braze non-ferrous metals such as copper, brass, or bronze; and "Easy-Flo 45," an all-purpose alloy for brazing most ferrous metals.

The Sil-Fos carton contains 20 20-in. sticks of the alloy, totaling about 12 oz. avoir. The Easy-Flo 45 carton contains 17 pieces of alloy wire 20 in. long, weighing about 5 troy oz. Both packages retail for about $5. For the benefit of new users each package contains a set of instructions.

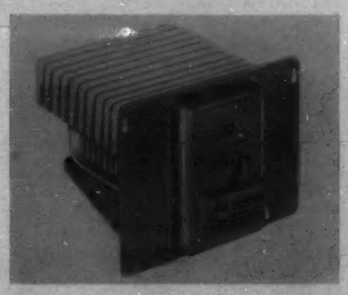
Larger Krack Komfort Masters Developed

Development of two larger sizes in its "Krack Komfort Master" series of remote type air conditioners "for low-cost cooling of homes, offices, factories, stores, restaurants, hotels, meat cutting rooms, and institutions has been announced by Refrigeration Appliances, Inc., Dept. AC&RN, 923 W. Lake St., Chicago 7.

The two new units have capacities of 7½ and 10 tons.

The two additions to the Komfort Master series make a total of five sizes available ranging from 2 to 10 tons. The units are made in three versions: double blower in the larger models, single blower in the smaller models, and stripped or cabinetless units for use on furred-in installations.

The units are basically designed for ceiling suspension but have been engineered to permit convenient floor installation wherever preferable, it was stated.



Viking Humidifier Has New Operating Principle

Scheduled for introduction to the trade this month is a newly-designed furnace humidifier by Viking Air Products, Dept. ACRN, 5601 Walworth Ave., Cleveland 2.

Trade named the Viking "6000," this automatic humidifier incorporates a new, easily-adjustable operating principle with such features of previous models as Viking's all-glass pan, the company said.

Other new features of the Viking 6000, according to the announcement, include a "lifetime" nylon valve "designed and tested to withstand all water wear and corrosion," and evaporator plates of new "Magnasil" material. The latter is claimed to be more efficient and longer lasting and to be unbreakable under normal handling conditions.

Armstrong Insulation Is Self-Extinguishing

A completely self-extinguishing, foamed plastic insulation for low temperature equipment and various building applications has been developed by Armstrong Cork Co., Dept. AC&RN, Lancaster, Pa.

Called "SE Armalite," the material has essentially the same physical properties as Armstrong's polystyrene foam insulation, plain Armalite, the company said.

"Both products have a low density of 1.25 lbs. per cu. ft., yet both are exceptionally strong and will not swell, warp, or buckle upon exposure to low temperatures," it was stated.

"The new material, however, contains a self-extinguishing ingredient which is 'locked' into the polystyrene early in the manufacturing process to assure a more thorough, uniform distribution without lessening the over-all thermal efficiency of the product."

The new United States Air Force Academy perched at 7,200 feet above sea level near Colorado Springs and Pikes Peak, soon to house 1,145 Cadets.

GAS-fired CARRIER

ABSORPTION REFRIGERATION PROVIDES TROUBLE-FREE, ECONOMICAL COOLING AT THE U.S. AIR FORCE ACADEMY

To provide comfort cooling, the new Academy is equipped with the nation's most efficient, up-to-date type of air-conditioning—gas-fired Carrier Absorption Refrigeration.

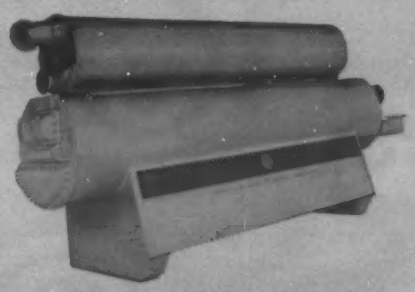
The absorption refrigeration unit makes use of one of the oldest and most reliable principles of refrigeration. No prime mover is required, only low-pressure steam or hot water. Seasonally idle or excess boiler capacity can be put to use on a year 'round basis.

This same type of automatic operation can put your heating system on a year 'round paying basis, too!

With gas as the boiler fuel,* operating costs are cut to a minimum. This gas-fired Carrier machine operates without noise and vibration . . . and because it is so compact and lightweight, it can be put almost anywhere—from basement to roof.

This is only part of the story of the efficiency and economy of specifying gas-fired Carrier Automatic Absorption Refrigeration equipment. Specific performance, engineering data and cost details are yours for the asking. Just call your local gas company, or write to the Carrier Corporation, Syracuse, New York.

American Gas Association.



Gas-fired Carrier Automatic Absorption Refrigeration

- cuts operating expense
- lowers installation cost
- provides quiet, vibrationless operation
- answers space and weight problems
- automatically adjusts to varying loads

Redmond

MICROMOTORS

One of largest stocks in the world!

MARVIN L. "FERGIE" FERGESTAD
FACTORY DISTRIBUTORS

CYCLO-FREEZE CORP.

6318 Cambridge, Mpls. 16, Minn.
West 9-6794

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—*at the Address Given in the News Item*

Small Ice Maker Produces 45 lbs. Per Day

A new automatic ice maker has been announced by American Automatic Ice Machine Co., Dept. AC&RN, 2100 Park Ave., Faribault, Minn.

This unit, model B-1, will make up to 45 lbs. of ice per day, it was stated. The cubes are made and stored automatically in an insulated stainless steel storage bin which has a 35-lb. capacity. The company reports that the new unit is the first ice cube maker available with this capacity.

The "Crystal Tips" B-1 is designed to provide an adequate ice supply for users with limited needs or for installation in several locations in restaurants, hospitals, motels, private rooms, or suites for convenient service it was explained.

Model B-1 operates on standard electrical and water connections, is 20 in. wide, 34½ in. high, and

28 in. deep, and the refrigeration system uses a ¼-hp. hermetically-sealed compressor. The B-1 carries the standard refrigeration warranty.

Dual Range Meter Takes 3 Leads

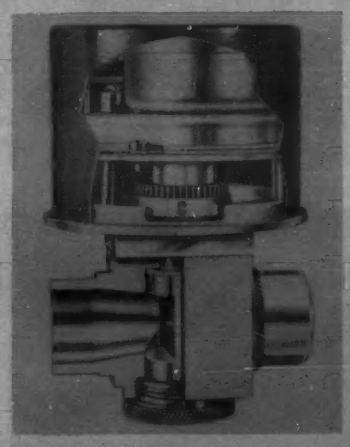
A new dual range "Therm-O-Meter" with a self-shielded core magnet meter movement has been announced by Simpson Electric Co., Dept. AC&RN, 5200 W. Kinzie St., Chicago 44.

Designed for measuring temperatures of gas, liquid, or solids, Simpson model 389-3L has two ranges—a low range from -50° to 100° F., and a high range from 100° to 250° F.

"This model can accommodate three leads simultaneously with separate readings through one selector switch on the front of the instrument," the company pointed out.

"Readings are made quickly, in a matter of seconds. Over-all accuracy is 3° F. in any position, and at near center scale accuracy is within 2° F. or better," according to the company.

Motorized Valve Zone Controls Wet Heat



A new motorized valve for zone heating is being introduced by Regent Engineering Co., Dept. AC&RN, 336 Potter Rd., Wood Dale, Ill.

Operating on low voltage upon a signal from its own thermostat, the compact valve provides for automatic multiple zone control on any new or existing hot water heating system, according to the company.

"Its slow cycle of operation produces a desirable modulating effect," the announcement stated. "It draws no current in either the open or closed position and its shut-off feature is such that no thermal leakage occurs."

Other features include "over-all height, position indicator, manual control, lifetime preset seal and auxiliary set of contacts."

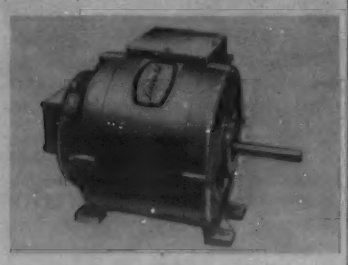
For Your Reprint Copy
"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
Only 25¢ each.

Heil Bows 'Sleekline' Low Boy Furnace

New low-boy gas-fired warm air furnaces—the Heil Sleekline Deluxe" and "Sleekline Economy"—have been introduced by Heil-Quaker Corp., Dept. AC&RN, 647 Thompson Lane, Nashville 4, Tenn.

The Sleekline Deluxe (BG Series) is available in five models ranging in capacity from 80,000 to 200,000 B.t.u. per hour input, the company stated. The specially designed builder type Sleekline Economy (EG Series) has five models in capacities of 80,000, 100,000, and 120,000 B.t.u. Lower input models are available with belt driven or direct drive blowers.

"New features include sectionalized heat exchangers of specially selected steel, stainless steel ribbon burner, filter gauge, slip-joint casing construction, new compact exterior design with easily removable front panels that can be painted by homeowners in their favorite colors, and summer fan switch," the announcement said. "The new models also have a full capacity blower motor for easy addition of central air conditioning without overloading."



Generator Kit Aids Truck Refrigeration

Availability of its new "Lektro-Cel" generator kit, a conversion unit designed to operate standard hermetic, semi-hermetic, and open-type condensing units as over-the-road refrigeration systems has been announced by Dole Refrigerating Co., Dept. AC&RN, 5910 North Pulaski Rd., Chicago 46.

This unit is suitable for application on present plug-in, hold-over type systems where sufficient plug-in time is no longer available, where insulation has lost its efficiency, or where the service on the equipment has been increased beyond the point it was designed for, the company said.

The generator mounted on the truck engine supplies single or 3-phase current to the condensing unit, and in addition, can also supply power for heating the truck body during winter time operation, it was noted.

Lektro-Cel generator kits are complete with all necessary components for the complete installation.

Are You Paying Premium Prices For Your Pipe Wrapping?

Now... cut costs, reduce inventories and *profit* more with the *one* standard insulation that fits every pipe and fitting, meets *every* service requirement!

THREE INSULATING BARRIERS *in* NO Drip TAPE

1. OUTSIDE
Rough surface prevents free circulation of moisture-filled air—creates dead air barrier.
2. ¼-INCH THICKNESS
Built-in moisture barrier assures utmost insulating efficiency.
3. INSIDE
Dead air is trapped between "corrugated strands", forms added insulation barrier.

NoDrip Tape means more profit, less work on every job . . . saves you time, labor, material. NoDrip Tape eliminates most multiple wrappings needed with thinner wraps . . . inferior wraps.

Why pay more when you can buy the handy 16 foot roll of ¼" thick NoDrip Tape at less than half the cost of a roll of ordinary ⅛" wrapping...and *far* below the cost of pre-formed foam cellular insulations?

Next time an equipment cold line job calls for *permanent* protection against condensation drip, "sweating" or frost, insist on using NoDrip Tape. Stops rust and corrosion, too . . . holds temperatures more constant and increases the efficiency of the cooling equipment.

NoDrip Tape is pliable, cork-filled and completely self-adhering. Easy to work with . . . forms an air-tight, 100% vapor and moisture proof jacket. Needs no tools, vapor seals, fasteners, brads or adhesives.

NO DRIP PLASTIC COATING... PROTECTION FOR BIG AREAS

Easier to Apply...
EVEN AROUND JOINTS, TEES, VALVES OR ANGLES

For large pipes, tanks, air ducts, we recommend NoDrip Plastic Coating for permanent protection from condensation, rust and corrosion. Another fine Mortell refrigeration product, NoDrip can easily be applied by brush or trowel to metal, concrete, brick, plaster, tile or composition surfaces.

JW Mortell COMPANY
Makers of Mortite Caulking Cord and Mortite Caulking Gun

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520 Burch St., Kankakee, Ill.
O.K.! Send me full information about the complete line of Mortell refrigeration products.

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What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

Blast Freezer Allows Small Food Packer To Process Chickens at -30° F.

LEFT: Four of the five Krack electric defrost coolers can be seen along ceiling of freezer room. The units defrost themselves automatically on an alternating basis without dissipating heat into the freezer room.

RIGHT: Room outside the freezing compartment houses a 30-hp. York rotary booster compressor, a 40-hp. hi-stage compressor, surge drums, intercooler, vertical liquid receiver, and automatic controls. The two-stage compression cycle takes place here.

CHICAGO — With the development of automatic control equipment, multi-stage compression, and automatic defrosting, blast freezing has come within the reach of the small and medium size frozen food packer.

An example of this trend among processors is to be found in Chicago's South Water Market at the Polo Produce Co. There, in a room 65 ft. long, 22 ft. wide, and 9½ ft. high, the company blast freezes more than 25,000 lbs. of chicken daily at -30° F. This low temperature blast freezing maintains better color and flavor in the final product.

Anthony Theis of Theis Refrigeration, York Associates in Chicago, designed and installed the refrigeration system.

Equipment in the Polo freezing room consists of five "Krack" electric defrost unit coolers, products of Refrigeration Appliances, Inc., Chicago, one 30-hp. York rotary booster compressor, and one 40-hp. York hi-stage compressor, surge drums, intercooler, vertical liquid receiver, and various controls.

"Walls, ceiling, and floor are insulated with cork to a depth of eight inches," explained Mark Goldberg, of Polo Produce. The Krack units were suspended from the ceiling at 5-ft. intervals at one end of the room.

Compressors and related equipment are housed in a 27-ft. by 23½-ft. space outside the freezer. All automatic controls are also located in this area. The two-stage compression cycle, without which it would have been practically impossible to get the desired temperature, takes place here. In the initial pulldown of the system the temperature in the freezer went to -46° F.

Ammonia refrigerant is pumped by the 30-hp. booster compressor through the intercooler to the hi-stage compressor.

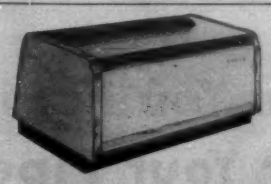
"This multi-staging of the compressors provides a considerable horsepower saving over the single-stage system. It would be economically impractical to operate a -30° freezer with single-stage compression," Theis said.

Each Krack unit is equipped with a 1½-hp. fan which blows chilled air across the room, just

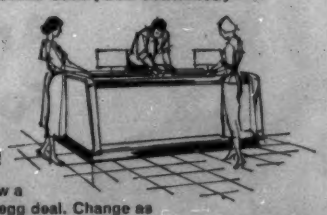
COLD, BOTTLED BEVERAGES SELL FASTER!

Popular Tyler Slide-Door Refrigerator with heavy-duty blower-coiling for *high-speed cooling* of bottled beverages. Use it also for fast sales of dairy products, table-ready meats, etc. Finger-touch, sliding glass doors. Big capacity in small space.

Tyler Slide-Door Refrigerator (Self-contained)



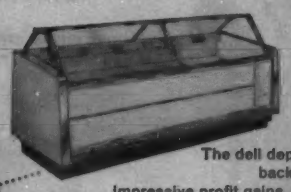
Tyler 6 ft. Dual Temperature Sales-Case (Self-contained)



SELL MORE OF EVERYTHING!

Today push ice cream special; tomorrow a fresh meat specialty; then a ham 'n egg deal. Change as often as you like. Just twist dial to normal or zero temperatures. Models: island; wall, with or without superstructure.

DELI PRODUCTS ATTRACT CUSTOMERS—BOOST MEAT VOLUME!



Tyler Delicatessen Sales-Case

The deli department is coming back strong . . . racking up impressive profit gains. Spot near fresh meats . . . boost volume in both departments. Tyler Deli Sales-Case in 8' and 12' display lengths.

SPEEDY 4-WAY SHOPPING BOOSTS SALES OF "SPECIALS," RELATED ITEMS!

Use this Tyler space-saver to speed turnover of all types of perishables. Move easily from one location to another for "spot" merchandising . . . end-of-gondola display . . . near checkouts! Takes just 3' x 5' floor space.

Tyler Refrigerated Display Table (Self-contained)

HIGH-PROFIT IMPULSE ITEMS MOVE TWICE AS FAST!

Powerful vertical display—easy-see, easy-reach! Just the thing for "spot" or end-of-gondola display of dairy products, meats, produce, bottled beverages. Big capacity! Adjustable shelves; removable for mass display!

Tyler 4 ft. Adjustable-Shelf Sales-Cases (Self-contained)

SUPER SALES-BUILDERS

Quick way to EXTRA PROFITS

—cash in on the power of SPECIAL DISPLAYS with these Tyler Sales-Builders!

MULTIPLY TURNOVER with this New Short-Cut to Profits!

Tyler Air-Skreen Sales and Storage Cooler! Wide-open, self-service sales and display, all the storage you need—in one, step-saving combination. *Load shelves direct from inside cooler.* Meats, dairy products, produce, bottled beverages move faster—in volume! Wide-open, vertical, mass displays as long as you want. Huge lineal shelf capacity. Adjustable shelves—horizontal or sloped.

* Trademark

Tyler Air-Skreen* Combination Sales and Storage Cooler

Copyright 1958, Tyler Refrigeration Corporation, Niles, Mich.

TYLER

PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Mich.

Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ont. (Export: Tyler Refrigeration International, C.A., Apartado Postal 9262, Caracas, Venezuela, S. Amer.)

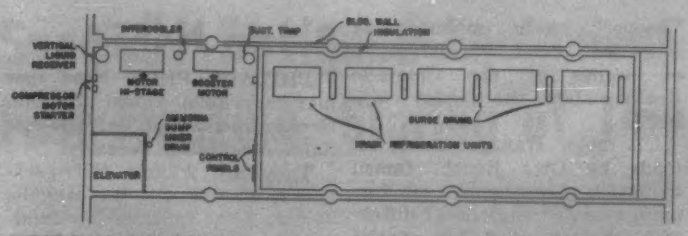
MOVE AHEAD WITH TYLER!

Tyler Refrigeration Corporation, Dept. AR-9 Niles, Michigan

Send data on ☐ new Tyler Air-Skreen Cooler ☐ Slide-Door Refrigerator ☐ Dual Temperature Sales-Case ☐ Delicatessen Sales-Case ☐ Refrigerated Display Table ☐ Adjustable-Shelf Sales-Case ☐ Condensing Units ☐ Shelving ☐ Checkouts ☐ Sales-Cases for_____

NAME_____

ADDRESS_____



FLOOR PLAN of the Polo Produce Co. blast freezing and equipment rooms. The freezing room measures 65 ft. by 22 ft. by 9½ ft. The company blast freezes more than 25,000 lbs. of poultry daily at -30° F.

beneath the insulated ceiling.

The air moves across the room to strike the opposite wall and diffuse into the room. In this way it keeps persons entering and working in the freezer from receiving a direct blast of chilled air.

"In our operation, everything is packaged in perforated cardboard boxes set on skids or pallets. This allows the freezing air to circulate freely among the boxes," Goldberg stated.

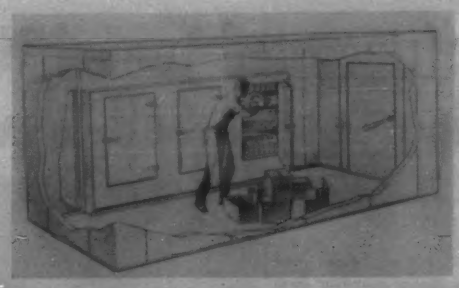
"One of the most important factors that recommended the Krack unit coilers was the way in which the units defrost themselves automatically without dissipating heat into the freezer room," Goldberg added.

The five units in the Polo freezer alternate one at a time on the defrosting cycle. Each unit defrosts itself once every 24 hours.

The defrosting cycle is commenced by a time switch, energizing the door control motor, which in turn closes the door of the unit. At the same time, the solenoid located on the refrigerant liquid line closes it off, thereby stopping the refrigeration cycle.

When the unit door approaches its closing stages, a mercury switch makes contact, energizing the coil heaters on the face of the unit. When the door is completely closed the defrosting cycle is in full operation with warm air being continuously recirculated within the unit by the fans. The entire unit is heavily insulated to prevent heat loss during defrost.

After the defrost period the timer again energizes the door control motor which opens the doors. The heaters are de-energized, the liquid line opens, and the refrigeration cycle is resumed.



Weber Offers 'Doorless' Reach-In Dairy-Delicatessen Box

LOS ANGELES — Weber Showcase & Fixture Co., Inc. announced the development of a "doorless reach-in refrigerated box" for dairy-delicatessen items and beverages.

J. L. Kaufhold, Weber sales vice president, said: "We expect the new Weber dairy box to span the period between today and the time that air-curtain refrigeration becomes practical."

The Weber development is a combination of its 4-deck refrigerated shelving case and a standard walk-in cooler box. The 4-deck "Colshelf" is fitted with rear loading doors and built into the side of a standard Weber walk-in cooler box.

"Today's consumer is conditioned to luxury shopping," Kaufhold stated. "Mrs. Shopper 1958 doesn't want to be bothered with doors on the dairy box."

If market layout requires it, the doorless dairy box will line up perfectly with a standard front loading 4-deck Colshelf, it was stated. The rear of the case can either be flush against the cooler box wall, or recessed into the box.

Rear loading doors on the Colshelf will open a full 36 in. wide. There are three doors on the 12-ft. models and two doors on the 8-ft. cases.

Evans Announces Expansion To Meet Doubled Sales

MOUNT VERNON, N. Y.— Plant expansion, including the addition of new manufacturing, research, and warehouse facilities, has been announced by Evans Mfg. Corp. here, producer of commercial refrigeration equipment.

Construction is expected to take two months to complete. It includes the building of a 20,000-sq. ft. masonry structure adjoining the firm's existing plant and office building at 30 Haven Ave., Mount Vernon.

The move is a result of the company's considerably-expanded operations, company officials stated. Sales of Evans' equipment during the year have virtually doubled those for the same period of 1957, they disclosed.

Accounting for the increase is a greater demand for the company's food and beverage refrigerator cases and freezers by domestic food chains, restaurants, and bakeries, it was pointed out. The firm also announced that its export division has also broadened its activities, particularly to South American, Near East, African, and Far Eastern markets.

The new structure will enable Evans to expand its present volume of production by about 60%.

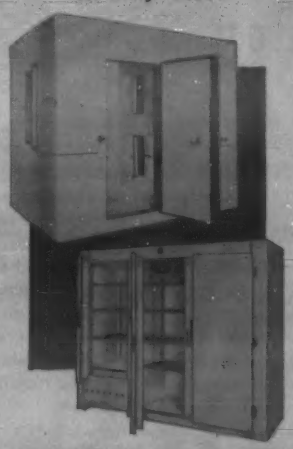
Gloekler

A FAMOUS NAME IN COMMERCIAL REFRIGERATION FOR OVER 50 YEARS!

As a pioneer designer and builder of commercial refrigerators, with more than 50 years of experience, Gloekler offers these important advantages:

1. Your customers get the finest construction materials and design plus the all-important benefits the industry's most advanced skills and facilities can offer.
2. Too, as a Gloekler dealer you are protected on every transaction in your area, and get conscientious factory cooperation in maintaining good customer relations.

WALK-IN & REACH-IN
Standard and Custom Designs for Every Need!



COMPETITIVELY PRICED
BACKED BY
WRITTEN WARRANTY

Gloekler
P.O. Box 1154-AC
ERIE, PA.

FLASH — — — — ZERO COLD INTRODUCES TWO NEW REFRIGERATED CASES FOR RETAIL MARKETS AND LIQUOR STORES — — — — DEALERS ENJOY NEW SOURCE OF PROFITS THAT WON'T STOP — — — —

E-Z-C EGG CASE

Here's a retail egg case that even has the acceptance of General Mills for their national brand of eggs, Sure Fresh. The Egg ZaC Egg Case is engineered to keep the eggs at exactly the right temperature and humidity and is designed to fit at the end of a gondola or against the wall. There are grocery stores in your area that have been waiting for an egg case like this — now you can be the first to offer it to them.

CUSTOM - ER - IZED
TRIPLE DECK DELICATESSEN CASE

This is the newest in refrigerated deli cases. Zero Cold paints the case and letters the sign, just as the customer wants it, *at no extra cost.* What liquor store doesn't want a personalized deli case? Add to this thermopane ends and front, stainless steel and aluminum trim, solid aluminum bumper rail, 15½ sq. ft. of display space, and you have the sharpest, "sellingest" delicatessen case on the market.

Why wait? Find out about these high profit, fast moving, "store-ready" specialty cases today. Write Dept. X for full price and descriptive information.

ZERO COLD INC.
1858 SOUTH MANCHESTER P.O. BOX 70 ANAHEIM, CALIFORNIA
On Santa Ana Freeway near Katella

Refrigerated Tunnel Highlights Newest King Sooper Self-Service Meat Department

CLOSEUP of over and under tunnel conveyor servicing 128-ft. meat counter at King Sooper market in Denver.

TRANSPARENCIES of Colorado Rockies taken by Otto Roach, famed mountain photographer, dramatize the meat department.

DENVER — A refrigerated tunnel 3 ft. high and 16 in. deep highlights the self-service meat department of the newest King "Sooper" market here, which is geared to a $50,000 a week meat volume.

The refrigerated tunnel extends 128 ft. across the rear of the store about four feet behind a continuous self-service Weber display case of the same length.

Between the case and the tunnel, six girls at 20-ft. intervals operate as many packaging stations. From behind any of the glass sliding doors that face the stainless steel tunnel, they can remove meats traveling along the conveyor belt inside the tunnel. They package the meats and put them on display as needed, moving only a few steps for the entire operation.

Only the top portion of the conveyor belt lies within the refrigerated enclosure. It moves at waist level. Return portion travels about 18 in. off the floor behind the supporting legs of the tunnel. Rheostat switches at either end and in the middle permit two-way operation of the conveyor belt.

Conveyor belt is actually 150 ft. long, one end passing through the 35-ft. wide cutting room to the right of the display area. About 2½ tons of refrigeration are required to keep the tunnel between 40 and 50° F. Cold air is circulated by a fan operating at about 3,500 c.f.m. Fan is located above the juncture of tunnel and cutting room.

Twelve meat cutters operate in the white tile cutting room and the 50 by 50-ft. meat cooler adjacent to it. With 13 overhead rails, the cooler can accommodate five carloads of beef.

Boning, beef grinding, and some pattying operations are carried out inside the 35° F. cooler, rather than in the smaller cutting room.

Cutting room is furnished with stainless steel processing equipment mounted on a hardwood bench. It is connected by intercommunications system with the packaging stations so the girls can order needed meats without leaving their posts.

With this system, designed by Beman Fast, King's store engineer, and engineered and installed by Weber Showcase & Fixture Co., of Los Angeles, meat is kept under constant refrigeration from the time it is received until it is sold, except for brief exposure when packaging.

To further dramatize his meat department to patrons, Lloyd King, owner of the King "Sooper" chain, mounted 34 4 by 4-ft. color transparencies of scenes of the Colorado Rockies above the display cabinet.

The color transparencies, all made by Otto Roach, famed mountain photographer, tilt forward at a 38° angle. Soft diffused light provided by special fluorescent fixtures behind the big photo murals make them readily visible from the rear of the store, 160 ft. away.

Warren Furnishes All Cases In 'Prestige' Store In Manhattan

NEW YORK CITY — The Warren Co. of Atlanta reports that it has furnished all the food merchandising refrigerators for Safeway's new "prestige" store in Manhattan's "silk stocking" district.

The 5,000-sq. ft. bantam supermarket on E. 58th St. just off Park Ave., is equipped with aqua and yellow "Super Merchandisers," the company pointed out.

The store has 48 ft. of produce display, 72 ft. of "Twin-Isle" freezers that can be shopped from two sides for frozen foods and ice cream, four refrigerated shelf sections for delicatessen and dairy departments, two open merchandisers for fresh ments, and a closed case model for delicatessen, fish, and poultry.

While the decor of the store is as modern as possible, a battery of telephones in the basement take telephoned orders for delivery to high-income apartment dwellers living in the area.

Exhibit Space Sold Out For NAFC Convention

WASHINGTON, D. C. — The National Association of Food Chains has announced that it has sold all exhibit space available for its annual convention at the Palmer House in Chicago, Oct. 5-8.

9 Join NCRSA

PHILADELPHIA—Nine new members have joined the National Commercial Refrigerator Sales Association recently.

They are Angelo Refrigeration & Electric Co., San Angelo, Texas; J. N. Bolton, Cleveland; Yankee Store Fixture Sales, Springfield, Mass.; K. C. Grocery Fixtures Co., Kansas City, Mo.; Friedrich Distributors, Dallas; Lowry Refrigeration Co., Indianapolis; Robert A. McWilliams, Schenectady, N. Y.; Comet Equipment, Inc., Cincinnati; and Stafford-Smith, Kalamazoo, Mich.

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Others include Neoprene Fabric and Waterproof Cotton Webbing.

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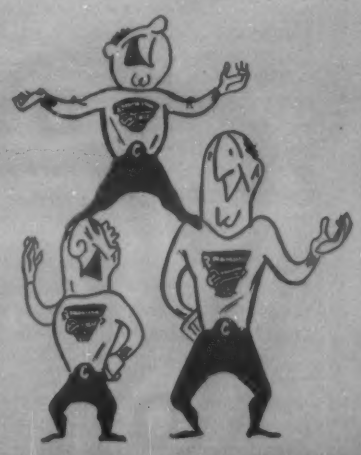

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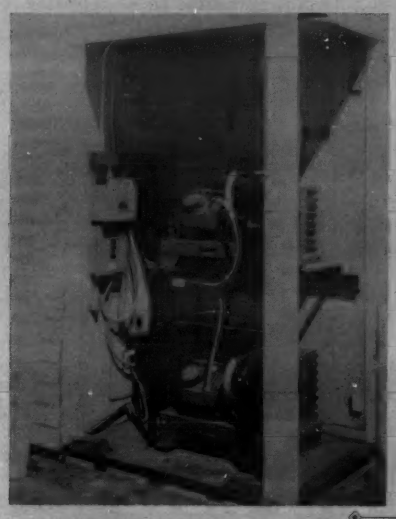
WRITE TO—A. H. BROMANN JR. INC.—Schiller Park, Illinois

Specially Designed Equipment Accomplishes Fast Freezing, Storing of Tiny Brine Shrimp



HOW TO FREEZE small packages of minute brine shrimp such as he holds in his hand (at right) was the problem facing Don Weisse, California refrigeration contractor. He solved it for the unique Brine Shrimp Sales Co. of Hayward, Calif., by mounting two Dunham-Bush low temperature coils on a rack of his own design (center) and connecting them up with two 2-hp. "Brunner-metic" low temperature condensing units mounted just outside (left). Louvered panels normally protect the condensing unit.

HAYWARD, Calif. — Brine shrimp, tiny creatures gathered from the salt beds of San Francisco bay, posed a few problems for Don Weisse, refrigeration contractor here.

Weisse was called upon to provide fast freezing equipment for the Brine Shrimp Sales Co., the only company in the world, it claims, that freezes and packages the minute crustaceans for sale as fish food.

Each day's catch, which may range from a bucketful to several barrels, is brought to the plant, washed, and immediately frozen.

Because of the seasonal nature of the business and the unusually small size of the product, the system had to be designed to hold the shrimp at 0° F. and yet have sufficient reserve capacity to handle the quick freezing load during the peak season.

To determine product load, Weisse had to determine what fraction of a B.t.u. is required to freeze brine shrimp, and how many of the tiny creatures are packed in a 3 by 3 by ¼-in. package.

With the help of Bill Wurzbach of William Wurzbach Co., Oakland refrigeration wholesaler, he found the necessary solutions.

To do the freezing job, Weisse selected two Dunham-Bush "ED" electric defrost, inner-fin coils. To conserve space, he mounted them one above the other on a special pipe rack he designed himself.

The "piggy-back rack" Weisse also used for mounting the two "Brunner-metic" low temperature 2-hp. condensing units. He put them in a louvered equipment shelter outside the building but immediately adjacent to the freezer room.

The system is proving extremely efficient, Weisse reports.

Midcontinent Warehouse

EVANSTON, Ill.—Erection of a new warehouse by Midcontinent Tube Service, Inc. here was started recently, it was announced by Merwin Abrams, vice president.

The warehouse will be on company property covering over 1½ acres at the rear of Midcontinent's main building at 2120 Lee St.

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Automatic 'Dehumidification Control' Uses Heat During Cooling Cycle

COLUMBUS, Ohio—An automatic "dehumidification control" system which uses heat during the cooling cycle has been developed by Ranco Inc. here. Readily applicable to window air conditioners, the new control system can be adapted for larger central self-contained equipment, according to Ranco.

Heart of the system is a solenoid-operated reheat valve which causes a portion of the discharge gas to by-pass into a portion of the evaporator coil for dehumidification control.

When return room air comes into contact with the cold pass of the evaporator, moisture is removed from the air and resultant water is drained away. As chilled air passes over reheat portion of the evaporator, heat is picked up, tempering the air to maintain desired room temperature, the firm claims.

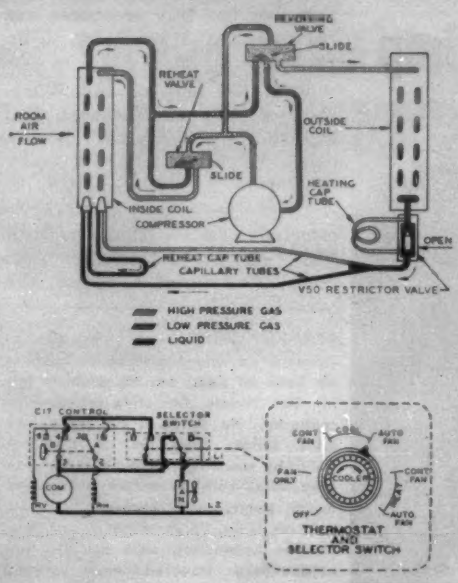

FIG. 1—During dehumidification phase, reheat valve slide allows high pressure gas to flow to one pass of inside coil. Room air is cooled and dehumidified in passing over first portion of coil, heated and tempered when passing over heated section. Addition of reversing valve and heating cap tube makes system operative on heat pump. Design of several capillaries assures correct refrigerant flow during various cycles.

Such a "dehumidification and reheat" cycle prevents the too-cold complaint so frequently made against air conditioning, states James H. Manecke, Ranco general sales manager.

The new system enables a room cooler to provide dehumidification without producing uncomfortably low temperatures, he explains. When room temperature is above desired temperature, the unit operates to do a cooling job. When room temperature starts to drop below the desired temperature, the unit operates to reduce humidity without reducing temperature.

When conditions call for maximum cooling, the reheat valve provides a circuit for the hot gas to flow only through the outside condenser coil. Resulting liquid refrigerant flows through two capillary tubes to lower end of evaporator, feeding both parallel paths.

When room thermostat drops slightly below cut-in point, unit goes into "dehumidification and reheat" phase. An electrical contact breaks, de-energizing the solenoid on reheat valve, allowing a slide in valve to shift.

In this position the reheat valve allows only a portion of the hot gas to go from the compressor to the condenser. The rest of the gas goes to the reheat section of the evaporator coil. (Return air section of the evaporator is always cold since this section of the coil is directly connected to suction side of compressor). A reheat capillary completes the circuit between the reheat and cooling passages of the evaporator coil.

When using a vertical coil, where the air passes through the coil in one direction, the coil should be circuited so that reheat and cooling paths are vertical and parallel. Return air must pass over cold section of coil first. Liquid refrigerant is fed in bottom and vapor taken off at top.

With horizontal coils, where air passes over coil twice, coil should be split so that portion exposed to return air is permanently connected to compressor, remaining section being connected through the side of the reheat valve to the compressor.

To prevent frosting of cold coil during dehumidification at low outside temperatures, fins should be common to both refrigerant paths in evaporator.

Electrical makeup of Ranco's dehumidification control system makes use of a single control having two switch units operated by a single power element.

Recommended wiring allows for manual changeover for heating or cooling. It also provides for choice of continuous or automatic fan operation, or fan operation without compressor—all without disturbing the thermostat setting.

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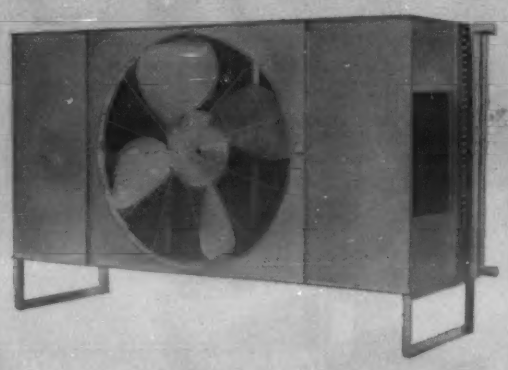

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Refrigeration Problems
And Their Solution
(*As Written by Paul Reed*)

TX Valve Freezes After Defrosting

QUESTION:

I have an open freezer case in a certain market. It has a ¾-hp. condensing unit. Every time the freezer is defrosted, the TX valve freezes up. What should I do? It only happens when the machine is shut down to defrost.

ANSWER:

From your description, it is obvious that you have moisture in the system, but the question is: "Why does it not show up except just after defrosting?"

What is probably happening is that most of the time, the moisture in the system exists as small globules of ice in the evaporator. Then when the evaporator is defrosted, these little droplets of ice melt and circulate through the system, finally getting to the expansion valve where the moisture freezes at the valve needle. By warming the valve, you melt the ice in the valve and it again freezes as drops of ice in the evaporator, where it remains until the next defrosting.

The remedy is to put on a generous size drier. Some driers have low pressure drop suitable for the low-pressure side of the system. Such a drier can be installed between the expansion valve and the evaporator. Most driers are designed for use in the liquid line, but if possible they should be put in the liquid line just ahead of the expansion valve and in the cold compartment of the freezer. There they have greater capacities for absorbing moisture, and are not so apt to give moisture back to the system in the spring and summer, as they would if located in the machine compartment; nor are they subject to room temperature.

Evaporator Not Fully Active

QUESTION:

I am having trouble getting the unit of an open-type Coldspot to completely frost over and still reach a low enough temperature to shut off.

ANSWER:

The open-type Coldspots used an automatic expansion valve. The most probable cause of failure of the evaporator fed by an automatic expansion valve, to frost completely over, is shortage of refrigerant. If the system is low on charge, the evaporator is not entirely frosted, both the discharge and suction pressures are below normal.

The best way to determine if you have enough charge, is to install a sight glass in the liquid line. If bubbles show, the system is probably low on charge. Add sulfur dioxide until the bubbles disappear. (Bubbles can also be due to restrictions in the liquid line, excessive pressure drop, or a partially clogged drier or screen.)

If the charge seems adequate, the expansion valve may be partially stopped (due to a clogged screen, etc.) or it may be set to maintain too low an evaporator pressure. Readjust the automatic expansion valve (by opening it to maintain a higher evaporator pressure) until, with the control set at mid-position, there is a frost line out on the suction line a few inches away from the evaporator when the thermostat cuts the machine off.

A partially defrosted or a not fully active evaporator, can also result from the compressor not being up to its normal capacity. This is usually accompanied by a low head pressure, low wattage, and the compressor head being only warm, instead of hot.

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WHAT . . WHEN . . WHERE

Midwest Association, Refrigeration Engineers Society Educational Conference
Oct. 9-11, Sheraton-Jefferson hotel, St. Louis.

Refrigeration & Air Conditioning Contractors Association Convention
Oct. 12-15, Broadmoor hotel, Colorado Springs, Colo.

Air-Conditioning & Refrigeration Wholesalers Meeting
Oct. 22-24, Sheraton-Palace, San Francisco.

National Electrical Manufacturers Association Meeting
Nov. 10-14, Traymore hotel, Atlantic City, N. J.

National Association of Practical Refrigerating Engineers Meeting
Nov. 11-13, Kenilworth hotel, Miami Beach, Fla.

Better Heating-Cooling Council Meeting
Nov. 17-19, New York City.

National Commercial Refrigerator Sales Association Convention
Nov. 17-19, Golden Gate hotel, Miami Beach, Fla.

Refrigeration Service Engineers Annual Convention
Nov. 21-24, Neil House, Columbus, Ohio.

American Society of Refrigerating Engineers Meeting
Dec. 1-3, Roosevelt hotel, New Orleans.

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TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Installation-Service Relationship

It is not unusual to hear an independent serviceman charge "They were interested only in getting the job in; they didn't give any thought at all to future service operations."

"They" in this case will be the contractor, the construction department of a national chain, or the manufacturer's application engineer.

Inaccessibility of units is a common complaint. Sharp reductions or expansions in duct size are another. Any service organization can come up with a long list.

Not only servicemen, but manufacturers bemoan the fact that installers so often give little thought to the effect of installation on optimum performance and subsequent maintenance and servicing of equipment. How many times has a manufacturer been heard to say in effect, "My God, don't these people *ever* read our installation instructions?"

This complaint is common to manufacturers of valves, compressors, condensing units, freezer cases, and entire giant engineered systems.

Gene Cuneo, commercial sales manager, George L. Johnston Co., Detroit, states emphatically, "Even with relatively new products like heat pumps, the heavy majority of our service calls are not on product, but on installation. Show me a nuisance job, and I'll show you a faulty installation.

"Things like improper drainage, air source chokedown," he illustrated. "Unfortunately, some installation errors are like having a dead elephant in the living room. It's pretty difficult to do anything about them."

Minor Things Can Cause Difficulty

Cuneo offered that sometimes installation practices overlook what seem like minor things only to have the omissions or malpractices cause difficulty later on. "A simple thing like not leveling a heat pump unit can cause the defrost drain pan to become useless. Then water freezes in the drain; then any of several things can go wrong."

Picking a typical winter service day which consisted of seven service calls on heat pumps, Cuneo found three calls due to using the heat pumps in incompleted buildings where they couldn't supply the heat needed with open windows, drying plaster, and the like.

Three calls were due to improper drain installation.

Only one call was due to product. A changeover valve was acting up, and the trouble was corrected by giving it a smack with a hammer.

Switching from heat pumps to supermarket installations of meat, dairy, and frozen food cases, the complaint of manufacturers and servicemen is again the same. Improper installation. Shortcuts may have saved the contractor or construction department some money, but the savings will be eaten up in excessive maintenance and service costs.

Again, it's little things—like drains.

In a study of 1,000 service calls, Tyler Refrigeration Corp., Niles, Mich., found that 820 were due, directly or indirectly, to improper drain installation, according to Harold Scott, service manager.

"This, in spite of the fact that at several places on the units, and in separate literature, we strongly emphasize the importance of proper drainage, and give detailed instructions for proper installation," Scott says in obvious frustration.

Results of Improper Drainage Noted

Some of the results of improper drainage, according to Tyler engineers, are frost accumulation on the coils—even to such a degree as to force a bulge in display trays; water backing up to fan motors and burning them out; wet floors.

Specifically, how do improper installations come about?

Well, still on the subject of drains, the difficulty may begin with the actual design of the supermarket. Architects, unfamiliar with drainage requirements of refrigerated cases, may place floor drains at unlikely locations. Unable to fulfill the ideal of no more than two cases to a drain, inexperienced plumbers may manifold and tee several cases into a common line.

One result of this is improper slope which should be a minimum of ¼ in. per ft. Another result will be running lines much longer than the maximum 12 ft. recommended by Tyler. Wrong sized pipe is a frequent error.

Another frequent cause of improper installation—on items other than drains—is an attempt at cost cutting, either to make a low bid, or to make up a loss once a job has been started. Common victims of many cost conscious contractors are refrigerant lines.

Refrigerant Lines Too Small, Too Large

It is all too common a practice for lines to be undersized to save money or oversized "to play it safe"—both with resulting operating inefficiencies.

Things are better, of course, in those situations where the man who installs is also responsible for service and gives forethought to these things.

An ideal example of this setup is that of Glen Ormsby, chief refrigeration serviceman, Michigan State university, Lansing. On campus, Glen is responsible for the operation and servicing of literally hundreds of units—everything from Carrier absorption units for air conditioning to fractional horsepower jobs for holding temperature and humidity in environmental test stations for plants and animals.

Much of the refrigeration and cooling is custom made—for a specific purpose. Usually out of odds and ends and standby equipment already available. (Not major air conditioning units, food handling apparatus, and the like, of course.) Designed with service in mind and possible alterations, these custom jobs approach the ultimate in accessibility and simplicity of design.

Chiefly, this comes about because there is one mind behind the entire picture. While this can never be achieved in industrial and commercial practice, the nearest thing to it is for the installer to assume that manufacturers and engineers know their stuff and to follow their instructions and recommendations as closely as possible.

Guiltiest culprit in the eyes of both manufacturer and serviceman is the installer with so many years' experience behind him that he plays each installation by ear—and strikes the wrong chord.

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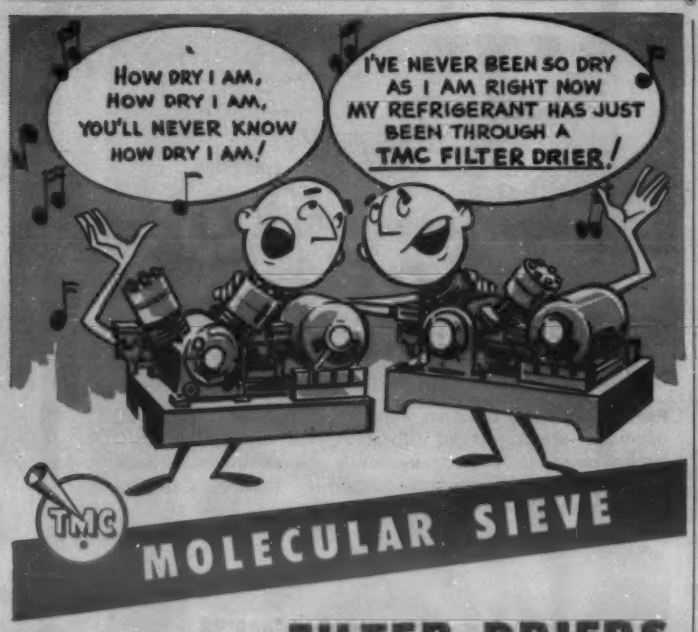
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Test them and you, too, will join the chorus singing the praises of TMC Filter-Driers with Linde Molecular Sieve. Their radically improved Moisture Removal, Filtration, Acid Removal and Pressure Drop have been proved by nationally recognized laboratories *and approved as original equipment by foremost manufacturers.*

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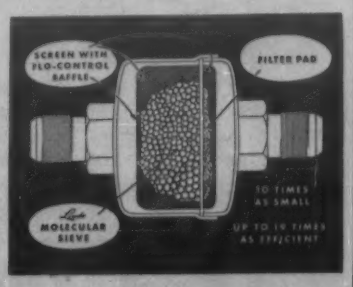
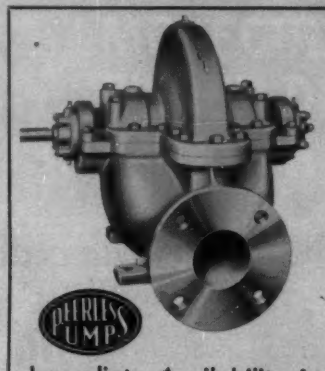
Fifteen-ton TMC Filter-Drier fits palm of your hand...saves space in your system, in your stockroom, in your service trucks. Simplified line means simplified ordering, reduced inventory, lower investment. PRICES... you'll get a pleasant surprise! It will pay you to write for QUESTIONS and ANSWERS Bulletin 1157 RIGHT NOW!



TUBE MANIFOLD
CORPORATION
435 BRYANT STREET • N. TONAWANDA, N. Y.
Another Product of the World's Largest Manufacturer of Liquid Receivers



PEERLESS Aqua Line PUMPS
GENERAL PURPOSE HORIZONTAL SPLIT CASE PUMPS FOR HOT and COLD WATER HANDLING AND CIRCULATION
Immediate Availability in Packed & Sealed Types

PACKED TYPE		SEALED TYPE
5"-8"	DISCHARGE	1½"-4"
up to 2600 gpm	CAPACITY	up to 950 gpm
up to 280 feet	HEAD	up to 350 feet
up to 250°F.	TEMPERATURE	up to 180°F.

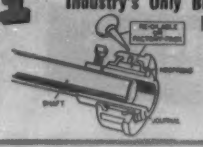
COMPACT
SPACESAVING
DEPENDABLE

Write for descriptive Bulletin No. B-2100

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
Peerless Pump Division
Plants:
LOS ANGELES 31, CALIFORNIA and INDIANAPOLIS 6, INDIANA
Offices: New York; Cleveland; Chicago; St. Louis; San Francisco; Atlanta; Plainview; Lubbock; Phoenix; Albuquerque; Los Angeles; Fresno. Distributors in Principal Cities. Consult your telephone directory.

4 Ways Viking Gives You MORE
yours for the asking!

1 Industry's Only Blower Bearing with Built-in Journal

Lighter loading, longer life.

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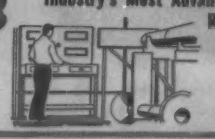
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All you need to know about air movement.

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5601 Walworth Ave.
Cleveland 2, Ohio
9" through 15" Blowers, Blower Wheels, Furnace Humidifiers

ARW Convenes on West Coast--

(Concluded from Page 1, Col. 2)

ever to be held on the West Coast, the continuation of the meeting in Los Angeles is a gesture of recognition for that marketing area, and also because it is realized that many members will visit Los Angeles following the attendance of the sessions at San Francisco.

J. Roger Deas of American Can Co., New York City, will speak at the "Kickoff Luncheon." His talk, entitled "Selling —The American Way," will be tailored for both wholesalers and manufacturers attending the luncheon.

At the morning session on Thursday, Thom Muir, publications director, *Air Conditioning and Refrigeration Business*, will present for the wholesalers, the wholesalers' case to their suppliers, and R. L. "Bob" Gibbs, general sales manager, Mueller Brass Co., will present the manufacturers' case to the wholesalers.

First speaker in the afternoon will be Dr. Joseph M. Trickett of the Graduate School of Business, Santa Clara university and a nationally-known authority on business management. His talk on this subject will be directed to both wholesalers and manufacturers.

J. Allen Walker, general credit manager of Standard Oil Co. of California and author of the book entitled "What Would You Say," will speak on the subject of "Credits, Collections, and Finance."

He will be followed by Stephen S. Babson, Peerless Pacific Co., Portland, Ore., who will talk on one of the more costly aspects of wholesaling, it was noted. His talk is titled "Hidden Corrosion—Is It Hurting Your Business?"

"Communications" is the subject of the program which will be conducted Friday morning by Dr. Gordon Gibb of Stanford university and an authority on the topic.

A discussion of "Sales and Advertising" will be presented by Willis Stafford, advertising manager, Detroit Controls Div. of American-Standard, who will direct his presentation to advertising at the wholesaler level.

C. G. Koopman, Supply Distributors Corp., Boston, will speak next on the subject of "Merchandise Control." Koopman's talk will present "a new concept for both supplier and wholesaler."

Friday afternoon, Robert McKee of Pacific Fruit Express Co., San Francisco, will present an illustrated non-technical talk on the new 700-ton, automatic ice plant in Ogden, Utah.

Also speaking at this session will be Dr. Walter O. Walker, Miami (Fla.) university. His talk is entitled "Oddities in Refrigeration."

Panel presentations will also be in the foreground with emphasis on "The New Concept."

Pre-convention activities include the ARW annual board of directors meeting on Oct. 20 and 21 in San Francisco and the annual golf tournament on Oct. 21 at the Olympic Country Club, San Francisco.

The ladies' program includes a land and sea tour of San Francisco and San Francisco Bay on Oct. 21 at 10 a.m.; the Kickoff Luncheon on Oct. 22; a tour of San Francisco's exclusive stores conducted by Virginia Worth on Thursday morning, Oct. 23; a luncheon also on Thursday in the Comstack Room of the Sheraton Palace hotel at 12:30 p.m.; and on Friday the officers' reception and the annual banquet.

Panel presentations featuring "New Concepts" and "55-20-1 x 1" will be featured at the meeting on Oct. 27 at the Sheraton West hotel, Los Angeles.

Hotel reservations should be made directly with the reservation managers of the Sheraton Palace hotel, San Francisco, and Sheraton West hotel, Wilshire Blvd. at Lafayette Park, Los Angeles.

Head-On Collision Injures Serviceman

SAN FRANCISCO—Frederic L. Pound was seriously injured in a head-on auto collision with two deer hunters on Sept. 12 near Yreka, Calif.

He is owner of Pound's Refrigeration and Appliance Service, secretary of the area organization of Refrigeration Service Engineers Society known as CARSES, and president of Golden Gate Chapter, RSES.

Pound was taken to Redding where a specialist operated to repair a shattered elbow, and returned to the hospital at Yreka.

He also suffered five broken ribs and a crushed chest.

Acme--

(Concluded from Page 1, Col. 3)

them up with a stronger sales support program than they have ever seen before, the company added.

The sales force will see a complete line of direct expansion packaged air conditioners from 3 to 60 tons. Some units are now in operation in the field.

Also to be displayed are lower priced air-cooled condensers, lower cost outdoor cooling towers, and a redesigned line of chillers that in some models are only half the size of previous models.

Advertising, sales promotion, and literature programs have been thoroughly overhauled and expanded, the company said. A two-color advertising program in 15 publications will be backed up by a monthly sales promotion package for every salesman.

Literature has been redesigned to carry more information in easy-to-use form.

Shift in sales emphasis was based on the observation that last year, Acme's dollar volume through field sales under the Acme name exceeded original equipment manufacturer sales.

Sutton Plans Liquidation--

(Concluded from Page 1, Col. 5)

have for converting our inventories to cash should gain us the cooperation of both distributors and dealers and quickly enable us to gain a liquid position."

All of the company's accounts payable, payroll, and other obligations are paid up, Hildreth indicated.

He said that as soon as current inventories and accounts receivable have been converted to cash and the banks paid the company will continue in business along lines to be designated by the board of directors.

Hildreth did not reveal the size of Sutton's current obligations. However, at the end of its 1957 fiscal year, on Nov. 30, 1957, the firm said its notes payable to banks totaled $6,050,000.

In that year it suffered a net loss of $1,719,579. In the six months ended May 31, 1958, it earned $35,792 before preferred dividends of $36,000.

Shortly after the Sutton announcement, about 1,000 members of Local 772, International Association of Machinists, reportedly offered to take substantial wage and benefit reductions in order to keep the company in production.

Riley, Goldberg Head Marco--

(Concluded from Page 1, Col. 5)

Frederick, Md. He also has many interests in other midwestern and eastern industries.

Phillip C. Kennedy, who has been connected with Marco Industries for the past eight years, has been appointed vice president of engineering.

Other key management personnel are F. Antondahm, chief master mechanic, and Walter M. Kowalski, plant superintendent. Both have been associated with the company for 10 years.

G. Russell Eddy, previously executive vice president, is no longer with the firm.

"As a new corporation," a company spokesman said, "we have not assumed any liabilities of Marco Industries, Inc. such as union contract disputes or other involvements that might tend to hamper our efforts or cripple production.

"Our sales representatives are the same people employed by us for the past several years.

"The plant is open for business and we will be ready to roll in two weeks."

Arkla 'Trade-Out' Program--

(Concluded from Page 1, Col. 2)

have experienced a failure for reasons covered by warranty, and (2) giving 'trade out' credits on all other units, such credit to be based upon a specific percentage of each utility's planned purchases for the remainder of 1958 and continuing through 1959."

Stephens pointed out that "the industry seems agreed that the possibility of sub-standard performance by these older units constitutes the greatest potential threat to future successful mass marketing of the smaller tonnage domestic gas air conditioning units."

Despite the need for such a program, he added, "during the past 12 months the demand for our Sun Valley units has been so great that even with a 100% increase in factory production since the first of the year, the total market has not been satisfied.

"We simply have not had extra units for 'trade-out' purposes."

Stephens estimates that some 20,000 gas air conditioners manufactured by Servel have now passed the period of warranty protection.

He said that the replacement program will apply to orders placed prior to Nov. 15, 1958 for delivery before Jan. 1, 1959. Utilities will receive one trade-out credit for every 13 units shipped.

Credits accumulated in excess of replacement needs may be used for installation in model homes, if approved by Arkla territorial sales managers, he said.

Specify
SHAFTS
by MODERN
Uniform in quality, precision machined to closest tolerances, Shafts by Modern now power compressors for the nation's leading lines of refrigeration and air conditioning units.
Call, write or send blueprints now for precision shafts made to your exact specifications.
MODERN MACHINE WORKS, INC.
Manufacturers of Crankshafts, Eccentric Shafts, and Straight Shafts SINCE 1924
5354 S. KIRKWOOD AVENUE CUDAHY, WISCONSIN

NOW increase profitable sales with a complete line of VILTER ammonia refrigeration equipment

Substantial sales are now possible in numerous areas for distributors prepared to offer a complete line of ammonia refrigeration equipment. With the versatile Vilter ammonia line, you can handle practically any commercial and industrial refrigeration application in your area on an attractive competitive basis.

The Vilter ammonia line consists of VMC compressors, 15-250 ton capacities, booster compressors, plus a wide range of associated refrigeration equipment—evaporative condensers, blast freezers, brine coolers, ice machines, shell and tube condensers, and cooling coils among others.

Vilter distributors enjoy many sales advantages:

- ★ Outstanding line of refrigeration equipment—known for its dependable service, long life, efficient, economical performance.
- ★ Equipment backed by ninety-one years of intense activity in engineering and research.
- ★ Strong home office support. Engineering application counsel is always available.
- ★ Wide acceptance of Vilter equipment in all industries using refrigeration.
- ★ The Vilter line is advertised widely in the trade press.

It will pay you to consider the Vilter line of ammonia refrigeration equipment for your area. High sales potential. Good profits. For distributors interested in the entire Vilter line there is a full Freon compressor line plus air conditioning equipment. Don't wait! Get acquainted now.

Vilter® REFRIGERATION and AIR CONDITIONING

WRITE IN NOW FOR COMPLETE INFORMATION

THE VILTER MANUFACTURING COMPANY • Milwaukee 7, Wis.

Ammonia & Freon Compressors • Pakice & Polarflake Ice Makers • Ammonia Liquid Transfer Systems • Evaporative & Shell & Tube Condensers • Pipe Coils • Valves & Fittings

The Vilter Manufacturing Company, Dept. G2
2217 S. First St., Milwaukee 7, Wis.

Gentlemen: Please send me the checked information—

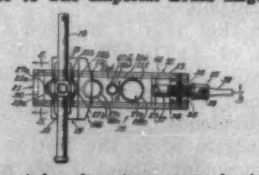
- ☐ Distributor information.
- ☐ Ammonia compressors and refrigeration equipment.
- ☐ Freon compressors.
- ☐ Air conditioning equipment.

Name.....
Title.....
Company.....
Address.....
City.....Zone....State.....

PATENTS

Week of July 22

2,843,924. TUBE CLAMPING MEANS. George E. Franck, Riverside, Ill., assignor to The Imperial Brass Mfg. Co.



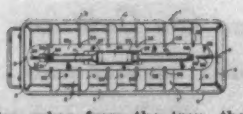
In a tube clamping means having a pair of channel-like members forming a carrier provided with a cross member at one end and a pair of tube clamping blocks at least one of which is slidably supported in the carrier, screw means for forcing said blocks together to clamp a tube therebetween comprising: a pair of aligned annular bearing members fixedly secured in openings in the sides of the carrier. . . .

2,843,926. ICE MAKING APPARATUS. Ralph D. Barton, Evansville, Ind., assignor, by mesne assignments, to Whirlpool Corp.

1. In an automatic ice maker, an ice mold having a plurality of ice-forming compartments therein, means for filling the mold with water to be frozen, refrigerating means for freezing the water in the mold, a mold heater for thawing the ice free of the mold, ejector mechanism including mechanical means movable into contact with the ice in the mold for removing the ice from the mold. . . .

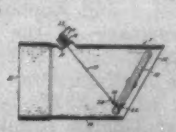
2,844,008. ICE TRAY. Michael K. Buchana, Norfolk, Va.

1. In an ice tray comprising an open top pan, a grid arranged in the pan to divide it into a plurality of compartments, in which the grid comprises a longitudinal member and transverse members, and in which the transverse members are movable with respect to the longitudinal member to release



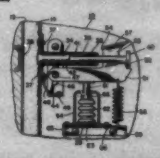
the ice cubes from the tray, that improvement which comprises a pair of members. . . .

2,844,008. DAMPER ARRANGEMENTS FOR AIR CONDITIONING UNITS. Bruce E. Birdsall, Cincinnati, Ohio, assignor to Carrier Corp., Syracuse, N. Y.



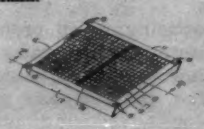
1. In a damper arrangement for use in an air conditioning system to regulate the discharge of conditioned air into a plenum chamber of a room unit, the combination of a sleeve adapted to protrude into the plenum chamber, one end of the sleeve being adapted to be connected to a source of high pressure, high velocity, conditioned air. . . .

2,844,111. REFRIGERATING APPARATUS DOOR CONTROL MECHANISM. Verlos G. Sharpe, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



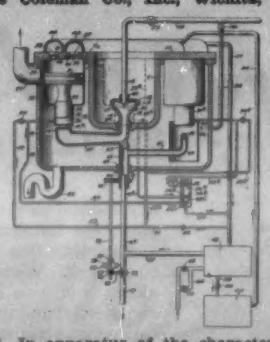
In a refrigerator, a cabinet structure having a compartment therein provided with an access opening and a door structure for closing the opening, a refrigerating system associated with said cabinet including an evaporator for cooling said compartment and an electrically operated refrigerant translating unit. . . .

2,844,215. KNOCK-DOWN AIR FILTER. Robert Blank, Cleveland Heights, and Jack Blank, Euclid, Ohio; Bertha Fenster and Goldie Lake, executrices of said Robert Blank, deceased, assignors to said Jack Blank.



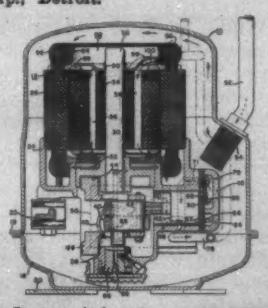
In combination with air filtering media, a knock-down air-filter casing for said media, comprising a four sided open framework having sides of sheet metal channels whose walls may be flexed slightly relative one to the other, and which are butted against each other in the framework to provide a light but rigid structure having two open faces, a wire network positioned across each of said open faces, the networks being spaced apart by the filtering media positioned therebetween. . . .

2,844,301. COMPRESSOR FOR REFRIGERATING SYSTEM. Alvin B. Newton, Wichita, Kan., assignor to the Coleman Co., Inc., Wichita, Kan.



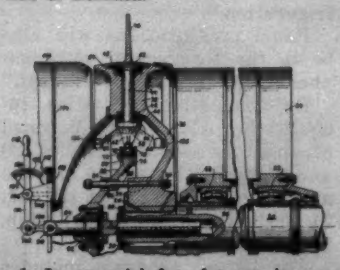
1. In apparatus of the character described, at least one cylinder having an enlarged end portion and a reduced end portion, an enlarged piston mounted for reciprocatory movement in the enlarged end portion of said cylinder, a piston of reduced diameter mounted for reciprocatory movement in the reduced end portion of said cylinder, means rigidly connecting said pistons together. . . .

2,844,302. REFRIGERATING APPARATUS. John Weibel, Jr., Dayton, Ohio, assignor to General Motors Corp., Detroit.



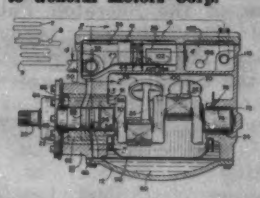
1. In a sealed motor-compressor unit, a sealed casing, a frame supported in said casing, a shaft journaled in said frame, a motor rotor secured to said shaft, a motor stator having a central opening surrounding said rotor and supported within said casing, compressor means drivingly connected to said shaft. . . .

2,844,303. AXIAL BLOWERS OR FANS. Svend Helge Kristiansen, Haestved, Denmark, assignor to Nordisk Ventilator Co., Aktieselskab, a corporation of Denmark.



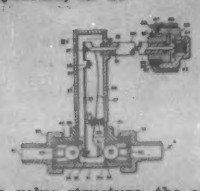
1. In an axial fan, for use in connection with a driving shaft, in combination, a hollow hub member mounted on said driving shaft, said hub including a hub ring, at least two wings journalled in said hub ring rotatably about their longitudinal axes, each wing comprising a wing blade and a root shaft. . . .

2,844,305. REFRIGERATING APPARATUS. Richard J. Becht and John Henry Heidorn, Dayton, Ohio, assignors to General Motors Corp.



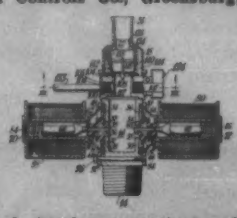
1. In a refrigerating system wherein a mixture of refrigerant and oil are circulated through a closed circuit, a compressor including a housing having cylinder bores formed therein and having a crankcase which forms an oil storage sump, a crankshaft in said housing, crankshaft bearing means in said housing, said cranshaft having offset crank portions projecting into the oil sump. . . .

2,844,319. THERMOSTATIC VALVE STRUCTURES. William L. McGrath, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



3. In a valve structure, the combination of a housing having an inlet therein and an outlet therein, said housing having a passage therethrough connecting the inlet and the outlet, said passage having two ports therein, valve members cooperating with the ports to close one of the ports responsive to the direction of flow of medium entering the passage. . . .

2,844,330. DEVICE FOR PROPORTIONING DIFFERENT TEMPERATURE FLUIDS. Paul E. Cate, Knoxville, Tenn., assignor to Robertshaw-Fulton Controls Co., Greensburg, Pa.



1. A device for proportioning different temperature fluids comprising a valve body having a pair of inlet passages for different temperature fluids, a pair of valve means in said body for controlling said passages respectively, electrically operable means for operating said valve means. . . .

MEN on the MOVE

Sporlan Valve Co.—HEROLD S. JORDAN has been placed in charge of the Kansas City office. He formerly assisted Pete McCarty in Sporlan's Los Angeles office. TOM ENOS, a former assistant product manager for thermostatic expansion valves and refrigerant distributors, has been transferred from St. Louis to Los Angeles to replace Jordan.

Union Carbide Chemicals Co., Div. of Union Carbide Corp.—H. ROBERT DOBBELAER has been appointed "UCON" fluorocarbons office manager. He has worked with the company's Special Products Div. in various administrative and technical capacities.

The Payne Co. — ORRIN E. "BUD" BURWELL has been promoted from southern California sales representative to managing director of the product application and engineering department.

Tuthill Pump Co. — Appointment of MICHAEL J. McCAUGHEY as general sales manager has been announced. He has been sales manager of the midwestern region.

American Air Filter Co., Inc.—Six additions to the company's field sales organization have been announced. RAYMOND J. DUNN has joined the Shreveport, La. office of AAF's representative there, Richard L. Johnson. DON RYAN, formerly with Kennard Corp. (an AAF subsidiary), and TOM MULVEY and LARRY HARLAN have joined Air Filter & Equipment Co., Chicago, as sales engineers.

EDWARD A. CRUSE has joined the Detroit branch office as a sales engineer. HAROLD BEE, formerly with Kennard Corp., has joined the staff of Rush Co., Kansas City representative for AAF.

American Gas Association—KENNETH F. MULDOON has been appointed advertising manager and LEONARD M. HAMMER, formerly vice president of Nelson B. Moore & Associates, Cleveland public relations agency, succeeds him as promotion manager. Muldoon succeeds CHARLES R. BOWEN, who resigned to join the advertising staff of International Business Machines Corp.

Hotpoint Co., Chicago—GEORGE R. CERO has been appointed supervisor, advertising and sales promotion for the factory branch, and BENJAMIN B. YANZITO, JR. has been named sales manager, Rockford, Peoria, and South Bend markets.

John Wood Co. — WALTER S. SEPURA has been elected vice president and plant manager of the Bennett Pump Div. He has been factory manager of Bennett Pump plants at Muskegon and Hart, Mich. since 1952.

Sepura had been scheduled to become vice president and plant manager of the Heater & Tank Div. plant in Chicago by a recently-announced election. However, it was explained, "in view of expanding operations and increased production in the Bennett division, the company's revised decision is that the new vice president's capabilities and experience can be most effectively utilized by continuing him at Bennett and increasing his executive responsibilities in that division."

W. T. Andrew Co. (Highland Park, Mich.)—C. BLAINE LYTLE has been appointed sales promotion manager as part of an accelerated program to assist heating, plumbing, and air conditioning contractors with their advertising and promotion.

James B. Clow & Sons, Inc. (Chicago)—THOMAS A. RIPLEY, vice president of manufacturing, has been elected to the board of directors, filling the vacancy created by the resignation of JOHN A. BYERS, retired.

OPPORTUNITY FOR A THOROUGHLY EXPERIENCED DESIGN OR ADMINISTRATIVE ENGINEER IN THE COMMERCIAL REFRIGERATION FIELD

Multi-plant manufacturer in eastern area offers permanent connection for the qualified applicant, in addition to unusual fringe benefit programs.

State complete educational background, marital status, work experience and earnings capacity, in your reply.

Write — R. J. Dietrich, Rm. 316, 739 N. Broadway, Milwaukee, Wis.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SALES EXECUTIVE: Experienced in year-round heating and cooling. Heating background from domestic installations to high pressure steam plants. Air conditioning from window units to centrifugal installations including central station, low temperature refrigeration, ammonia design and survey. Twenty-five years in industry. Formerly product sales manager heating & cooling for leading air conditioning manufacturer. B.S. and M.S. degree in mechanical engineering. Resume if desired. Reply BOX A6109, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

PRODUCTS SPECIALISTS needed by leading air conditioning manufacturer. Expanding position covering all areas related to product development, application and salability in liaison between Sales and other company divisions on packaged liquid chillers, packaged air conditioners and air handlers. Excellent opportunity with growing company. Address replies with complete summary of personal history and work experience to Mr. John P. Campbell, ACME INDUSTRIES, INC., 600 N. Mechanic Street, Jackson, Michigan.

SALES ENGINEER wanted for Chicago area. We represent a complete line of heating, cooling and air conditioning products. Unlimited opportunity for right man. Write or call for interview. HEATING & COOLING PRODUCTS, 1630 South Michigan Ave., Chicago 16, Illinois. Telephone WAbash 2-7800.

HAVE OPENING for qualified field representative capable of appointing distributors, helping them plan stores, and serving existing customers. Territory Illinois, Wisconsin, Iowa, Indiana. Not necessary live in the Chicago area; could work from central Illinois or Indiana. Present representative being promoted, creating this opportunity with a fast-growing company. Write WARREN REFRIGERATORS, P. O. Box 1436, Atlanta, Georgia.

APPLIANCE SERVICE trainer—Full line major manufacturer, Chicago or Muskegon, Michigan location. Must have ability to conduct appliance training school and develop training programs. Write P. O. BOX 3818, Merchandise Mart, Chicago 54, Illinois.

SALES ENGINEER for Dayton, Ohio territory to take over already established contacts with architects, consulting engineers, plant engineers and mechanical contractors in the sale of air moving and conditioning equipment. This is an excellent opportunity for an unlimited income. Write P. O. BOX 43, Cincinnati 38, Ohio.

FIELD SERVICE engineer wanted for the eastern part of the United States. Age under 40. Position pays salary and expenses, provides insurance, hospitalization, and vacation with pay. Applicant must be free to travel in a limited territory. Good personality, 10 years of commercial installation and service experience is required, including working knowledge of electricity. Give full details of your background and experience and enclose small professional photograph and telephone number in first letter of application. Give five references. BOX A6103, Air Conditioning & Refrigeration News.

CHIEF ENGINEER—Air conditioning. An excellent opportunity for the right man to guide and supervise an entire sales staff on engineering matters. Large Chicago contractor requires a man with extensive heating, ventilation, and air conditioning background from a contractor's level, to head engineering department. Must have knowledge of systems from residential through turbo installations. Man with leadership; ability will find this an attractive offer. Compensation based on ability. BOX A6107, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED FOR export—200-500 lots components including compressors, fan motors, etc. For ¾, 1, 1½ h.p., 230/50 room air conditioners. Reply all details BOX A6108, Air Conditioning & Refrigeration News.

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MODEL HH 2 h.p. automobile air conditioning compressors tapered shaft, vertical mount, complete with flywheel $33.95. Send for free circulars and catalogs on money saving refrigeration & air conditioning parts and supplies. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

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Air Distribution Requirements In Year-Round Air Conditioning

Part 2-Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

The system designer must be aware of and take into consideration the Heat Gains and Losses in the Duct System.

Charles H. Kilpatrick, through work done at the University of California, investigated this field quite thoroughly, arriving at definite methods for calculation using a modification of Shultz's equation. Reducing these methods to graphic and nomographic charts as reproduced in Figs. 46 and 47, Kilpatrick arrived at the inside film coefficient, through the modified Shultz by:

$$F_i = \frac{0.32\ V^{.8}}{D \times 25}$$

In this case the V is equivalent to the air velocity in f.p.m.; the D is equivalent to Duct diameter in feet. Kilpatrick used an average outside film coefficient of 1.65 B.t.u./hr. per square foot per F.

The results obtained are expressed per 100 ft. length of Duct, and while based on round duct initially, it can be applied to rectangular duct as shown in the following.

Strock in his book, *Heating and Ventilating Engineering Databook*, uses Kilpatrick's charts and applies them to a typical problem much as in the following illustration.

TO BE SOLVED:

Take an example where it is desired to determine the temperature rise in the air flowing through a duct, thus establishing the Heat Gain, 4.1 ft. in diameter and 100 ft. in length. It is insulated with material having a conductivity of 0.40 B.t.u./hr./sq. ft. per inch F. The air entering the duct is 40° F. and the velocity is 2,200 f.p.m. The atmospheric ambient on the outside of the duct is 90° F. The density of the air entering at 40° F. is 0.07 lbs. per cu. ft.

SOLUTION:

Refer to Fig. 46 and at the lower left of the graph find the duct diameter of 4.1. Follow this line upward to the correct velocity of f.p.m. of 2,200. Follow the horizontal line from this point, to the right, where the thickness of insulation curve 0.40 intersects.

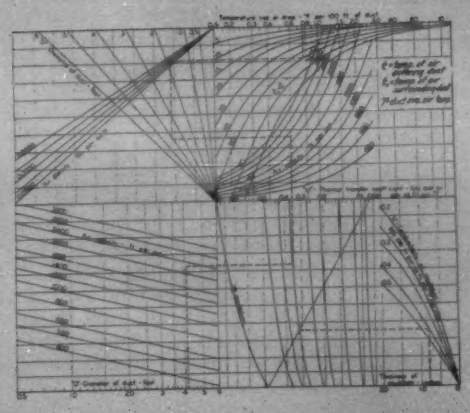

FIGURE 46

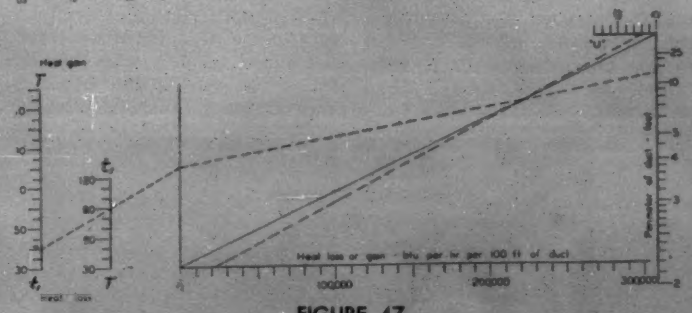

FIGURE 47

Rise upwards once again to the "U" Scale where intersection reveals a Heat Transfer Coefficient of 0.35 B.t.u./hr./sq. ft. per F. Continue this vertical line upwards until it intersects once more the 2,200 Velocity line curve.

Move horizontally to the left to the point where the line intersects the duct diameter of 4.1. Rise vertically once again with a line to intersect the 0.07 air density line. Move to the right with a line from this point to where it intersects the temperature difference curve of 50° F. (40° Entering minus 90° Ambient).

Rise once again vertically with a line from this point to the scale in the upper right hand corner outlining Temperature rise or drop in °F. per 100 feet of duct, and find it is approximately 0.75, which is the degree rise in temperature of the air, or temperature gained per 100 ft. Add to this the entering air of 40° and the combined temperature leaving therefore would be 40.75° F.

Calculate the Heat Gain as (40 + 40.75) ÷ 2 = 40.4° F. for the average temperature; refer to Fig. 47 "Heat Loss" section of the Nomogram, in turn in locating 40.4, draw a line from this point on the left scale to 90 on the right hand scale, extending the line to the unscaled vertical line of the right hand of the Nomogram.

Accept the perimeter of the duct at 12.9 ft. and locate it on the extreme right hand scale. Draw the extended line from left to right to this point. Note now the solid diagonal line rising from lower left to upper right, "O" to "O"; further note the intersection the two make.

Locate on the upper right hand "U" scale the 0.35 previously found. Draw a line from this point through the previous intersection and extend it down to the "Heat Loss or Gain Per 100 Ft." scale at the bottom. It is found then that the Heat Gain is 22,500 B.t.u./hr. per 100 ft.

In applying these results for rectangular Ducts merely use the equivalent round in order that the perimeter may be established.

The problem and solution given is, of course, concerned with HEAT GAIN. In calculating for HEAT LOSS, merely reverse the order of using the vertical scales at the left of the Nomogram, i.e., use the extreme left scale for Ambient and the right hand one for the air in the duct.

Extended and extensive duct systems where discharge ducts must pass through varying conditions of atmospheric ambient, as can be seen, become utterly defeated in purpose unless the system designer evaluates the system from the standpoint of Duct Heat Gain or Loss, or in some cases both depending on the conditions and situation.

(To Be Continued)

No. Carolina Exam Set for October 17

RALEIGH, N. C.—The North Carolina State Board of Refrigeration Examiners has announced that it will give an examination at Chapel Hill, N. C. on Oct. 17 for persons who wish to take the examination for a refrigeration contractor's license.

This will be a regular examination as prescribed in the North Carolina General Statutes, and is designed to ascertain the technical and practical knowledge of the applicants concerning the analysis of plans and specifications, estimating cost, fundamentals of installation, and design.

Persons may secure an examination application form from the Board's office in Raleigh. All applications must be received by the Board on or before Oct. 10.

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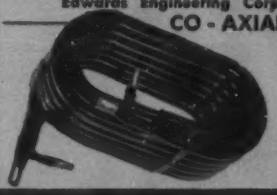

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A43

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Room Air Conditioner Excise Tax--

(Concluded from Page 1, Col. 3)

2. Revised ruling become effective Nov. 1, 1958.

3. Units sold for delivery under builders' contracts made prior to the effective date be excluded.

4. Language of the ruling clearly limit the tax to what is known in the industry as room air conditioners.

5. Sleeves and shelves furnished by manufacturers for supporting air conditioners be exempt from taxation. These are architectural items rather than integral parts of the air conditioner.

To incorporate these suggestions, NEMA recommended that Ruling 54-462 be revised to read as follows:

NEMA Version

"It is held that a self-contained air conditioning unit subject to tax under Section 4111 of the Code is limited to the type of unit known in the industry as a room air conditioner, which is a factory-made encased assembly, or one sold for assembly on installation, designed as a unit primarily for mounting in a window or through a wall or for use as a portable or as a console unit. These units are designed primarily to provide direct delivery of cooled air, without ducts, to an enclosed space, room, or zone. They include a prime source of cooling and means for circulating, dehumidifying, and cleaning air, and may also include means for ventilating.

"Certain units incorporate components or parts to provide a means for heating the air. Examples of such units and the tax consequence are indicated below:

(1) Units which furnish heat by means of electric resistance heating elements. These are partially taxable as self-contained air conditioning units.

(2) Self-contained air conditioning units designed specifically for heating and cooling through reversal of refrigerant or air flow are not taxable articles under the purview of Section 4111 of the Internal Revenue Code.

(3) Units which include provisions for heating by means of steam or hot water piped into the units from an outside source. These are partially taxable as air conditioning units."

ARI Asks July 1 Date

In a four-page letter hand delivered to IRS on Sept. 15, Rudy Berg, chairman of ARI's tax committee, expressed the institute's "firm conviction that the proposed definition should be clearly drafted to cover what are known in the industry as room air conditioners and that the effective date of the change should be July 1, 1959."

ARI would define a room air conditioner as a self-contained unit having a capacity of no more than 17,000 B.t.u.h. at ASRE standard design conditions.

Berg urged the July 1 effective date because:

(1) Any earlier effective date would "cause a tremendously increased tax burden on an already hard-pressed industry," while July 1 would avoid all problems connected with exemption of inventories.

(2) An inventory exemption would discriminate harshly in favor of a relatively few producers.

(3) The industry is already embarked on a new model year and the new ruling would have the inevitable effect of disrupting present production schedules and requiring expensive changes.

"For any industry whose estimated total carry-over of 700,000 units is a reflection of general industry market conditions, the economic effects of an earlier date than July 1, 1959 cannot be overstressed," Berg declared.

ARI Suggestions

"It is held that a self-contained air conditioning unit subject to tax under Section 4111 of the code includes a compressor type or an absorption type unit, whether a factory made encased assembly or one sold for assembly on installation, which is designed for the free delivery without ducts of conditioned air, and for use as a portable or console unit or for installation in or in front of a window or other opening through which the removed heat is directly discharged without ducts or other special connections. It incorporates means for cooling, dehumidifying, and circulating the air of a room or other enclosure and may also include means for ventilating, heating, or performing other functions.

"The above definition shall cover all units as above described which have a total heat removal capacity of 17,000 Bt.u./hr. or less when tested in accordance with ASRE standard 16-56 (or latest revision thereof) under conditions of 80° dry bulb, 67° wet bulb on the inside and 95° dry bulb, 75° wet bulb outside. This capacity is to be certified by the manufacturer for tax purposes and it will be considered that any product, purchased at retail and tested as above described, which produces a test capacity less than 5% below the 17,000 B.t.u./hr. limitation will be taxable."

The above definition, ARI commented, makes provision for units which may include means for heating the air. As to such units it is believed that they consist of the following categories with the tax consequences indicated for each category:

(1) Units which provide heat through mere reversal of the refrigerant fluid cycle. These are taxable in their entirety as air conditioning units.

(2) Units which furnish heat by means of electrical resistance heating elements. These are partially taxable as self-contained air conditioning units under Section 4111 and partially as electric air heaters under Section 4121.

(3) Units which include provisions for heating by means of steam or hot water piped through the unit from an outside source. These are partially taxable as air conditioning units.

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